Summary

Draft EIS/EIR: Pacific Gas and Electric Company San Joaquin Valley Operations and Maintenance Program Habitat Conservation Plan

This document is an environmental impact statement/environmental impact report (EIS/EIR) analyzing the effects of issuing state and federal incidental take permits and entering into a streambed alteration agreement to enable the Pacific Gas and Electric Company to continue its San Joaquin Valley operations and maintenance programs in conformity with the requirements of federal and state endangered species laws and the California Fish and Game Code. It has been prepared in compliance with the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA), and is intended to disclose potential environmental effects and enable the public and regulatory agencies to comment on the proposed program of activities and alternative approaches. The U.S. Fish and Wildlife Service (USFWS) is serving as the lead agency for NEPA compliance and the California Department of Fish and Game (DFG) is the lead agency for CEQA compliance.

Background

The Pacific Gas and Electric Company (PG&E) is the largest publicly traded electric and gas utility in the United States, serving more than 4.8 million electricity customers and 4 million natural gas customers in 48 of California's 58 counties. Statewide, PG&E owns more than 5,700 miles of high-pressure natural gas transmission pipelines; 59 compressors at 17 stations; and more than 35,000 miles of gas distribution pipelines. PG&E's electrical system comprises a total of about 18,450 miles of interconnected transmission lines; about 105,500 miles of distribution lines; and 1,014 substations.

Almost one-third of PG&E's 70,000–square mile service area lies within nine San Joaquin Valley counties: San Joaquin, Stanislaus, Merced, Fresno, Kings, Kern, Mariposa, Madera, and Tulare. Consequently, much of the company's electricity and gas transmission infrastructure is within this nine-county area, including approximately 1,550 linear miles of natural gas transmission pipeline; 8,326 miles of natural gas distribution pipeline; 4,588 miles of electric transmission lines; 20,549 miles of overhead electric distribution lines; and 3,987 miles of underground electric distribution lines.

PG&E's natural gas and electrical infrastructure requires a regular program of maintenance to ensure reliable delivery of service. Some of the company's operations and maintenance (O&M) activities have the potential to result in disturbance, injury, or mortality of wildlife listed as endangered or threatened under the federal and/or state Endangered Species Acts (ESAs), and such "take" of listed species is strictly regulated. To date, O&M activities have not been substantially constrained by ESA restrictions; however, because additional species continue to be listed as threatened or endangered, thus becoming subject to ESA protections, PG&E has entered into discussions with USFWS to develop an approach that will allow its essential O&M activities to continue while maintaining the program in full compliance with the federal and state ESAs.

Provisions of Section 10[a][1][b] of the federal ESA establish a process through which businesses and individuals can apply for a permit allowing take of federally listed species under certain, restricted circumstances (to be permissible, take must occur as a corollary of otherwise lawful activities, and may not be the purpose of the activities; this is referred to as *incidental take*). The permit is issued by the USFWS and/or National Marine Fisheries Service (NFMS), depending on the species involved. A key requirement for issuance of a Section 10[a][1][b] permit is preparation of a conservation plan, commonly referred to as a *habitat conservation plan* or HCP. The HCP must fully analyze the effects of the proposed take, and describe the measures that will be taken to avoid, minimize, and compensate for it.

PG&E began informal consultation about its O&M program with USFWS in the mid-1990s. This effort was inconclusive, and discussion was reinitiated in 2001. Based on the outcome of these conversations, PG&E has been working with USFWS to prepare an HCP covering its San Joaquin Valley O&M activities. The draft HCP document is currently available for public review, and is included as Appendix B of this EIS/EIR. When it is finalized, PG&E hopes to obtain a Section 10 permit authorizing take of listed species as a corollary of its San Joaquin Valley O&M program.[1] The USFWS decision regarding issuance of a Section 10 permit to PG&E will constitute a federal action subject to the provisions of NEPA, which requires that federal agencies consider and disclose the environmental consequences of their actions, including permitting and funding the activities of other entities. Where those consequences may be significant, NEPA requires preparation of an EIS.

PG&E also plans to use the HCP to apply for a state take permit under Section 2081 of the California Fish and Game Code, which regulates take of species listed under the California ESA; and to support its application for a streambed alteration agreement under Section 1602 of the California Fish and Game Code, to ensure authorization of any O&M activities that may affect the bed or banks of natural watercourses.[2] Much like NEPA, CEQA requires that state agencies

[1] The HCP includes analysis of potential effects on migratory birds, and the federal incidental take permit, if issued, will also be used to request a Special Purpose Permit consistent with Section 21.27 of the federal Migratory Bird Treaty Act (see additional discussion under *Regulatory Context* in Chapter 5).

[2] DFG anticipates that the streambed alteration agreement will take the form of a program-scale master agreement extending for the 30-year duration of the HCP and permit term and covering all O&M and minor construction

analyze and disclose the environmental impacts of their discretionary activities, specifically calling for the preparation of an EIR when impacts may be significant; CEQA compliance is required because DFG will exercise discretionary (decision-making) authority in reviewing PG&E's applications for a Section 2081 permit and master streambed alteration agreement.

Joint Compliance Approach

This document has been prepared as a combined EIS/EIR for "joint" compliance with NEPA and CEQA. When a project is subject to review under both NEPA and CEQA, state and local agencies are encouraged to cooperate with federal agencies in the preparation of joint environmental documents. Joint environmental documents must fulfill the procedural and content requirements of both NEPA and CEQA; an important advantage of joint compliance is that it streamlines the environmental review process by satisfying both laws with a single document, while providing full opportunity for the public and agencies to comment on the proposed activities.

For simplicity, this document uses NEPA terminology; Table S-1 shows the correspondence between key federal (NEPA) and state (CEQA) terms.

Table S-1. Correspondence Between Key National Environmental Policy Act and California Environmental Quality Act Terms

NEPA Term (Federal)	CEQA Term (California)
Lead Agency	Lead Agency
Cooperating Agency	Responsible Agency
Environmental Assessment	Initial Study
Finding of No Significant Impact	Negative Declaration
Environmental Impact Statement	Environmental Impact Report
Notice of Intent	Notice of Preparation
Notice of Availability	Notice of Completion
Record of Decision	Findings
Proposed Action	Proposed Project
No Action Alternative	No Project Alternative
Environmentally Preferable Alternative	Environmentally Superior Alternative
Purpose and Need	Project Objectives
Environmental Consequences	Environmental Impacts

activities enabled under the proposed action. The term *master streambed alteration agreement* is accordingly used in this EIS/EIR. DFG is currently revising the draft streambed alteration agreement to reflect the latest updates to the California Fish and Game Code.

NEPA Term (Federal)	CEQA Term (California)
Affected Environment, Existing Conditions	Environmental Setting

Purpose, Need, Goals, and Objectives for Proposed Action

NEPA requires an EIS to briefly describe the underlying purpose and need for a proposed federal action. CEQA embodies a similar requirement for an EIR to contain a statement of the goals and objectives a project is proposed to meet. The following paragraphs present the NEPA purpose and need and CEQA goals and objectives for the proposed action, as identified by USFWS and DFG.

The **purpose** of the proposed action is to respond to PG&E's application for federal and state incidental take permits under Section 10[a][1][B] of the federal Endangered Species Act, Section 2081 of the California Endangered Species Act, and all implementing regulations and policies for 42 wildlife and plant species that are state- or federally listed as threatened or endangered and 23 additional species that are not yet listed, but that may become listed during the term of the permit, collectively referred to as the *covered species*.

Activities proposed by PG&E for the operation and maintenance of their existing gas and electrical facilities throughout the San Joaquin Valley could result in the take of individuals belonging to covered species. In the absence of a permit—and the conservation planning entailed by the permit review process—take would violate the federal and California Endangered Species Acts. **Thus, the proposed action is needed to ensure compliance with the federal and California Endangered Species Acts,** as well as NEPA, CEQA, and other applicable federal and state laws and regulations, while allowing PG&E to continue a program of O&M activities essential to the reliable delivery of electricity and gas service to some 4 million customers in their California service area.

Consistent with the identified need, **the goal** of the proposed action is to review PG&E's permit applications under the federal and California Endangered Species Acts and make a permitting decision, in order to protect, conserve, and enhance the covered species and their habitats for the continuing benefit of the people of the United States. **Specific objectives include the following.**

- Provide a means and take steps to conserve the ecosystems depended on by covered species.
- Ensure the long-term survival of the covered species through protection and management of the species and their habitats.
- Ensure that take of covered species is avoided and minimized to the maximum extent feasible and is fully compensated for by appropriate mitigation measures.

Lead, Cooperating, and Responsible Agencies for NEPA and CEQA Compliance

As identified above, USFWS is the lead agency for NEPA compliance and DFG is the lead agency for CEQA compliance for the proposed action.

The following agencies have been identified as *cooperating agencies* under NEPA—that is, additional federal agencies with legal jurisdiction over the project and/or expertise regarding its potential environmental effects.

- Bureau of Land Management.
- Department of Housing and Urban Development.
- Environmental Protection Agency.
- NMFS.
- U.S. Army Corps of Engineers.

Responsible agencies under CEQA—additional agencies with approval or funding responsibility for the proposed action—include the following.

- CPUC.
- Central Valley Regional Water Quality Control Board.
- Counties of Fresno, Kern, Kings, Madera, Mariposa, Merced, San Joaquin, Stanislaus, and Tulare.
- California Department of Transportation, Districts 6 and 10.
- Native American Heritage Commission.
- San Joaquin Valley Air Pollution Control District, Kern County Air Pollution Control District, and Mariposa County Air Pollution Control District.

Required Permits and Approvals

CPUC Jurisdiction

The California Constitution vests in the California Public Utilities Commission (CPUC) exclusive power and authority with respect to "all matters cognate and germane to the regulation of public utilities" (Cal. Const., Art. XII, Sec. 5; *Pacific Telephone & Telegraph v. Eshleman* [1913] 166 Cal. 640, 652–660). The California Public Utilities Commission (CPUC) thus has sole authority over the siting, design, operation, and maintenance of PG&E facilities.

Natural gas infrastructure is regulated under CPUC General Order 112-E, which is intended to augment federal Pipeline Safety Regulations by providing further minimum requirements

> for the design, construction, quality of materials, locations, testing, operations and maintenance of facilities used in the gathering, transmission and distribution of gas and in liquefied natural gas facilities to safeguard life or limb, health, property and public welfare and to provide that adequate service will be maintained by gas utilities operating under the jurisdiction of the commission [CPUC].

Electrical utility facilities are regulated under General Order 131-D, which is similarly aimed at ensuring safety and reliability of service, and establishes several avenues for project review and approval, depending on the nature of the project.

The California Constitution (Art. XII, Sec. 8) explicitly prohibits municipalities from regulating "matters over which the Legislature grants regulating power to the Commission [CPUC]." As a result, CPUC's jurisdiction preempts the discretionary[3] authority of local jurisdictions over gas and electrical facilities. However, all projects subject to General Orders 112-E and 131-D are required to comply with local ministerial[4] permitting requirements, along with all relevant state and federal regulations and permitting requirements.

Additional State and Federal Regulatory Framework

In addition to the provisions of the federal and state Endangered Species Acts, the California Fish and Game Code, NEPA, and CEQA, the activities analyzed in this EIS/EIR may be subject to a wide range of other environmental compliance requirements. Briefly, these include the following.

- The federal Migratory Bird Treaty Act.
- Requirements of the federal Clean Water Act regarding discharge of stormwater from construction sites.

[3] As defined in Section 15357 of the state's CEQA Guidelines, a *discretionary* decision is one that requires a public agency to exercise judgment or deliberation in deciding to approve or disapprove a proposed activity, as distinguished from situations where the agency only needs to determine whether a proponent has complied or conformed with applicable statutes, ordinances, or regulations. Examples of discretionary decisions include passage of new laws and ordinances; approval and revision of planning documents such as General Plans, Specific Plans, HCPs, Timber Harvest Plans, etc.; and approval of proposals for new public facilities and many private developments.

[4] As defined in Section 15369 of the state's CEQA Guidelines, a *ministerial* decision is one that is mandated by existing laws, regulations, statutes, or procedures, and thus involves little or no personal, subjective judgment by public officials or agencies. Examples include issuing automobile registrations, dog licenses, and marriage licenses. A grading or building permit is ministerial if the ordinance requiring the permit limits the public official to determining whether zoning allows the structure to be built in the requested location, whether the structure would meet applicable building codes, and whether the applicant has paid the required fee.

- Federal Clean Water Act stipulations regarding placement of fill materials in jurisdictional waters of the United States.
- Requirements of local jurisdictions' grading and construction permitting processes (note that issuance of grading and building permits is typically a ministerial action).
- Federal and state protection of cultural and paleontological resources, including the National Historic Preservation Act and Native American Graves Protection and Repatriation Act, and Executive Orders regarding tribal assets.
- Federal environmental justice regulations.
- Federal and state air quality regulations.

USFWS is also subject to the federal Administrative Procedure Act, which mandates uniformity and openness in federal agencies' procedures; and the Federal Advisory Committee Act, which governs the initiation and operation of advisory committees in the executive branch of the federal government.

Individual regulations, codes, and standards are described in detail in Chapters 3 through 15, which discuss the proposed action's effects on specific resources.

Public and Agency Involvement

Public disclosure and dialogue are priorities under both NEPA and CEQA. Both laws mandate specific periods during the compliance process when public and agency comments on the proposed action and draft EIS (or EIR) document are solicited: during the scoping comment period, during the review period for the draft document, and during the release of the final EIS/EIR document. Lead agencies are also encouraged to hold public meetings or hearings to review the draft version of the document. Brief descriptions of these milestones are provided below, as they apply to this document.

Scoping Comment Period

Scoping refers to the public outreach process used under NEPA and CEQA to determine the coverage and content of an EIS or EIR. The scoping comment period offers an important opportunity for public review and comment in the early phases of project development. Scoping contributes to the selection of a range of alternatives to be considered, and can also help to establish methods of analysis, identify the environmental effects that will be considered in detail, and develop mitigation measures to avoid or compensate for adverse effects. The scoping process for an EIS is initiated by publication of the Notice of Intent (NOI) required by NEPA, which is a formal announcement to the public and to interested agencies and organizations that an EIS is in preparation; similarly, CEQA requires the lead agency to issue a Notice of Preparation (NOP) announcing the beginning of the EIR process. During the scoping period,

agencies and the public are invited to comment on the proposed action, the approach to environmental analysis, and any issues of concern.

USFWS published the NOI for this document in the Federal Register on March 25, 2004 and DFG submitted the corresponding NOP to the State Clearinghouse on March 26, 2004, initiating the 30-day public scoping period required by NEPA and CEQA. Consistent with NEPA and CEQA requirements, the NOI and NOP provided information on the background and purpose of the proposed action; announced preparation of and requested public comment on the EIS/EIR; and provided information on the public scoping meetings to be held in support of the EIS/EIR. Appendix A contains the full text of both notices.

USFWS and DFG held two public scoping meetings for the proposed action in April 2004. To maximize public access to the meetings, one meeting was held in Stockton and the other in Fresno. Both meetings were advertised in local newspapers (the *Fresno Bee* and *Stockton Record*) and via direct mailing to interested parties.

The scoping meetings used an informal workshop format with informational handouts and personnel available to discuss the proposed action and alternatives with attendees. Attendees were greeted on arrival and asked to sign an attendance record form listing their name, address, and affiliation, and indicating whether they would like to be added to a project mailing list. Each guest was also given the option to provide written comments or concerns s/he would like addressed in the EIS/EIR and was provided with a comment form; attendees had the option of completing the form at the meeting or mailing it to USFWS prior to the close of the scoping period (April 26, 2004).

Public and Agency Review of EIS/EIR

Once a draft EIS or EIR is complete, the lead agency is required to notify agencies and the public that it is available for review. The official notification is referred to as a Notice of Availability (NOA) under NEPA and a Notice of Completion (NOC) under CEQA. The NOA is sent to the U.S. Environmental Protection Agency for publication in the *Federal Register*. The NOC is sent to the State Clearinghouse; CEQA also requires that the lead agency provide written notice of the draft document's availability to the County Clerk's office for posting, as well as publishing it in a general-circulation newspaper, posting it on and off the project site, or mailing it to residents of properties adjacent to the project site. Issuance of the NOA/NOC initiates a public review period, during which the lead agency receives and collates public and agency comments on the proposed action and the document.

USFWS and DFG are now circulating this draft EIS/EIR for a 90-day public review and comment period, and will also conduct a public hearing to present the results of the EIS/EIR analyses and solicit comments in person. The purpose of public circulation and the public hearing is to provide agencies and interested

individuals with opportunities to comment on or express concerns regarding the contents of the draft EIS/EIR.

Preparation of Final EIS/EIR and Public Hearing

Before the lead agency can approve a proposed action, it must prepare a final EIS/EIR that addresses all comments received on the draft document. The final EIS/EIR must include a list of all individuals, organizations, and agencies that provided comments, and must contain copies of all comments received during the public review period, along with the lead agency's responses. The final EIS/EIR is expected to be available in mid-2006.

Issues Identified in Scoping Comments

As discussed above, one of the purposes of the scoping process under both NEPA and CEQA is to identify any areas of controversy or public concern related to a proposed project. Both CEQA and NEPA require that an EIR/EIS identify issues of known controversy, if any exist. However, despite the premeeting outreach conducted by USFWS and DFG, attendance at the scoping meetings for the proposed action was sparse, and very few comments were received during the scoping period (see Appendix A). The single comment letter received stressed the breadth and complexity of the conservation effort entailed by the proposed action, the number of species and diversity of habitats involved, and the need to ensure that PG&E's conservation planning is consistent with existing recovery plans for species covered by the HCP. No other areas of specific public or agency concern have been identified at this time.

Overview of Proposed Action and Alternatives

The proposed action and alternatives would all be implemented within the same area, shown in Figure S-1 and referred to in this document as the *action area*. No activities would take place outside the action area. The action area comprises all or part of nine San Joaquin Valley counties: San Joaquin, Stanislaus, Merced, Fresno, Kings, Kern, Mariposa, Madera, and Tulare. However, only a small portion of the lands within the action area boundary would actually be subject to O&M and minor construction activities enabled under the proposed action. O&M activities would be limited to existing PG&E rights-of-way (ROWs) and immediately adjacent lands. Minor construction activities could require the acquisition of additional small acreages of ROW, but would also be very restricted in extent.

The following sections describe activities and conservation commitments under the proposed action and alternatives.

Proposed Action

Overview of Components—Proposed Action

PG&E proposes to use the HCP it is currently developing to apply for federal and state permits authorizing take of listed species as a result of its San Joaquin Valley O&M program. PG&E also intends to use the HCP to support the development of a master streambed alteration agreement with California Department of Fish and Game (DFG) to regulate O&M activities that may affect the bed or banks of natural drainages.

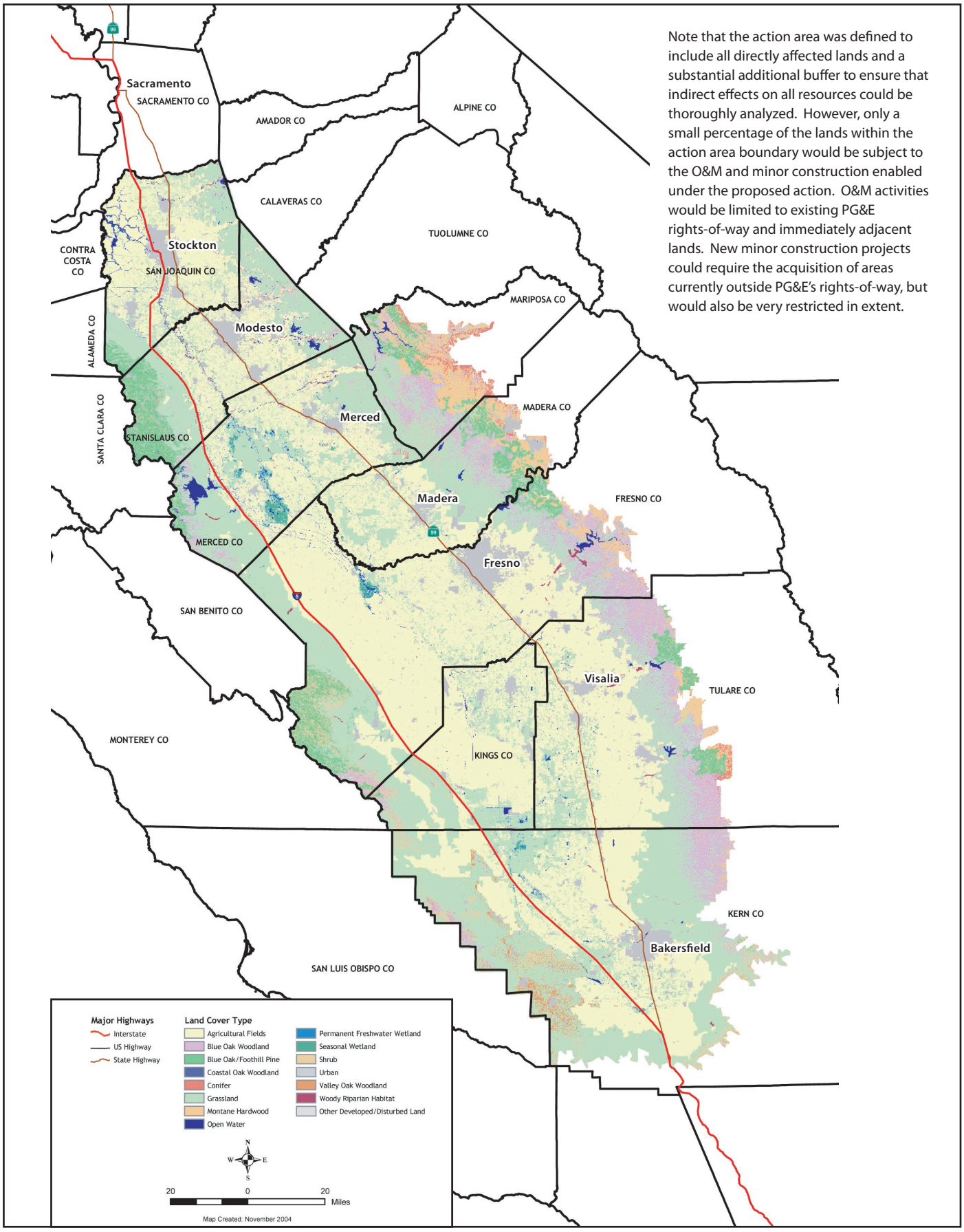
The U.S. Fish and Wildlife Service (USFWS) has full discretionary authority over the issuance of Section 10 permits, and, having consulted with PG&E and reviewed the HCP, could choose not to approve it, in which case no Section 10 permit would be issued. Similarly, following its review, DFG could elect to deny a state take permit and/or streambed alteration agreement, or could decide not to approve the HCP implementation agreement. In order to fully analyze the potential environmental outcomes, this EIS/EIR assumes that the HCP will be approved, federal and state take permits will be issued, and a master streambed alteration agreement will be enacted. However, this document uses the language "proposed action" to emphasize the discretionary nature of the key federal and state approvals as well as the need to complete the NEPA and CEQA review processes.

Based on the assumptions above, the proposed action would include the following components.

- Federal components:
  - approval of HCP and HCP implementation agreement,
  - issuance of incidental take permit.
- State components:
  - approval of HCP implementation agreement,
  - issuance of Section 2081 incidental take permit,
  - entry into master streambed alteration agreement with PG&E.

Activities Analyzed Under Proposed Action

Together, assuming that PG&E's applications for take permits and a master streambed alteration agreement are approved, the federal and state components of the proposed action would enable PG&E to continue its existing program of O&M activities in compliance with federal and state Endangered Species Acts and the California Fish and Game Code. They would also implement the HCP and commit PG&E to a program of environmental and conservation measures to



Note that the action area was defined to include all directly affected lands and a substantial additional buffer to ensure that indirect effects on all resources could be thoroughly analyzed. However, only a small percentage of the lands within the action area boundary would be subject to the O&M and minor construction enabled under the proposed action. O&M activities would be limited to existing PG&E rights-of-way and immediately adjacent lands. New minor construction projects could require the acquisition of areas currently outside PG&E's rights-of-way, but would also be very restricted in extent.

02067.02 (11/05)

Jones & Stokes

Figure S-1
Extent of Action Area, Showing County Boundaries and Land Cover Types

This page intentionally left blank.

avoid, minimize, and mitigate the effects of incidental take. Accordingly, this EIS/EIR analyzes two categories of activities under the proposed action:

1. PG&E's ongoing O&M and minor construction activities; and
2. activities included in new environmental commitments and mitigation measures required under the terms of the HCP and the HCP implementation agreement.

O&M and Minor Construction Activities

The proposed action would enable three types of activities under the aegis of the San Joaquin Valley O&M program, as follows.

- *Operation activities*, which include inspecting, monitoring, testing, and operating valves, reclosures, switches, etc. To perform these activities, personnel work at existing facilities and typically use existing access roads.
- *Maintenance activities*, which include ongoing and emergency repairs to facilities, structures, and access roads; replacement of facilities, structures, and roads, as needed; and vegetation management, including tree trimming and construction of firebreaks.
- *Minor construction activities*, which include installing new or replacement structures to upgrade facilities or to extend service to new customers. Minor construction is limited to installation of 1 mile or less of new electric or gas line (per project), and/or new permanent facilities with an average maximum footprint of 5 acres (per project).

Table S-2 lists the operation, maintenance, and minor construction activities that would be permitted through the proposed action.

Table S-2. Operation, Maintenance, and Minor Construction Activities Under Proposed Action

O&M Activities	
Natural Gas System	***Electrical System***
Patrols	Patrols
Facilities Inspections	Inspections
Pipeline Remedial Maintenance	Electrical Insulator Washing
Compressor Station Maintenance	Electric Substation Maintenance
Pipeline Electric Test System Installation	Electrical System Outage Repair
Pipeline Valve Replacement	Facility Installations (Shoo-Flies)
Pipeline Cathodic Protection Maintenance	Electrical System Tower Replacement or Repair
Pipeline Lowering	Electrical System Pole and Equipment Replacement and Repair
Pipeline Coating Replacement	Electric Line Reconductoring
Pipeline Valve Recoating	Vegetation Management and Access Road Maintenance
Pipeline Replacement	Wood Transmission Pole Test and Treat
Pipeline Telecommunication Site Maintenance	
Vegetation Management and Access Road Maintenance	

Minor Construction Activities	
Natural Gas System	***Electrical System***
Construction of Pipeline Pressure Limiting Stations	Electrical Tower Line Construction (Transmission Lines)
Pipeline Valve Installation	Wood Pole Line Construction/Relocation (Distribution Lines)
New Pipeline Installation	Minor Substation Expansion
	Underground Transmission and Distribution Line Construction

PG&E's Existing Environmental Programs and Practices

In general, the California Public Utilities Commission (CPUC) requires PG&E to provide reliable energy to the public in a way that avoids or substantially lessens the related environmental impacts. PG&E has a wide range of procedures, commitments, and programs in place to ensure that work is conducted safely and adverse environmental effects are avoided or minimized. The company's annual environmental awareness training program is attended by as many as 6,000–8,000 company staff. Contractors retained by PG&E are normally trained by their respective companies, but like PG&E employees, the company's contractors are held responsible for complying with all applicable environmental laws and regulations while working under contract, and with implementing any additional environmental protection measures established by PG&E. Both PG&E employees and contractors also receive site-specific "tailboard" briefings for activities requiring environmental compliance.

PG&E's environmental programs address the following concerns.

- Land use and planning issues, including land use compatibility and aesthetic concerns.
- Biological resources.
- Geologic hazards and geotechnical engineering.
- Water quality.
- Cultural resources.
- Traffic flow and safety.
- Construction and operational noise.
- Air quality.
- Hazardous materials.
- Environmental justice.

In addition to these programs, PG&E has a continuing commitment to ensure that all work is performed in accordance with federal, state, and local regulations for safety and protection. Where applicable, work is also conducted in accordance with landowner agreements.

Environmental Commitments Enacted by the Proposed HCP

Table S-3 lists the 42 special-status plant species and 23 wildlife species covered by the proposed San Joaquin Valley O&M HCP.

Table S-3. Species Covered by San Joaquin Valley O&M Habitat Conservation Plan—Proposed Action

Wildlife	Plants	
Vernal pool fairy shrimp	Large-flowered fiddleneck	Legenere
Midvalley fairy shrimp	Lesser saltscale	Panoche pepper-grass
Vernal pool tadpole shrimp	Bakersfield smallscale	Congdon's lewisia
Valley elderberry longhorn beetle	Big tarplant	Mason's lilaeopsis
California tiger salamander	Mariposa pussypaws	Mariposa lupine
Limestone salamander	Tree-anemone	Showy madia
California red-legged frog	Succulent owl's-clover	Hall's bush mallow
Blunt-nosed leopard lizard	California jewelflower	San Joaquin woollythreads
Giant garter snake	Hoover's spurge	Pincushion navarretia
Swainson's hawk	Slough thistle	Colusa grass
White-tailed kite	Mariposa clarkia	Bakersfield cactus
Golden eagle	Merced clarkia	San Joaquin Valley Orcutt grass
Bald eagle	Springville clarkia	Hairy Orcutt grass
Western burrowing owl	Vasek's clarkia	Hartweg's golden sunburst
Bank swallow	Hispid bird's-beak	San Joaquin adobe sunburst
Tricolored blackbird	Palmate-bracted bird's-beak	Keck's checkerbloom
Buena Vista Lake shrew	Kern mallow	Oil neststraw
Riparian brush rabbit	Congdon's woolly sunflower	Greene's tuctoria
Riparian (San Joaquin Valley) woodrat	Delta button-celery	King's gold
Tipton kangaroo rat	Striped adobe-lily	
Giant kangaroo rat	Bogg's Lake hedge-hyssop	
San Joaquin (Nelson's) antelope squirrel	Pale-yellow layia	
San Joaquin kit fox	Comanche Point layia	

The proposed HCP's conservation strategy uses three mechanisms to address the potential effects of O&M activities on these species and their habitat, as follows.

- General measures to avoid and minimize impacts ("avoidance and minimization measures," or **AMMs**).
- **Surveys** to assess potential impacts on particular species, when warranted.
- **Compensation** for impacts that cannot be avoided.

This strategy was developed in keeping with eight guiding principles.

1. The highest priority is to avoid and minimize adverse effects; AMMs should be implemented to the fullest extent practicable before compensation is undertaken. To that end, general AMMs are implemented on all projects. The need for additional AMMs is identified based on survey results.
2. Compensation should be coordinated with and incorporated into other regional conservation efforts.
3. Preserving habitat on site and in kind is preferable to mitigating or preserving habitat off site.
4. Preserving a small number of large, contiguous habitat areas is preferable to preserving a greater number of small, discrete areas. Habitat should be preserved at sites that are surrounded by compatible land uses.
5. Compensation should satisfy applicable state and federal goals, policies, and standards for wetlands.
6. Land management activities must maintain habitat quality for covered species.
7. Monitoring provides the feedback loop to support the adaptive management component of the conservation strategy.
8. Adaptive management continually assesses, evaluates, and adapts management prescriptions to achieve the HCP's biological goals and objectives.

O&M activities affect the environment to varying degrees, depending on what is involved—for instance, whether there is surface disturbance or vegetation removal—whether the activity takes place in an existing ROW or not, and which species are likely to be present in the area. The appropriate conservation response to each type of activity depends on the anticipated level of effect, as summarized in Table S-4.

Table S-4. Level of Effect and Conservation Approach—Proposed Action

Level of Effect	Definition	Conservation Approach Under Proposed Action
Small disturbance	Activity disturbs less than 0.1 acre per event and has a very low potential to result in adverse effects on habitat, or would result in very limited adverse effects. Includes vegetation management activities, which disturb habitat by removing or reducing vegetation, but do not result in ground disturbance.	PG&E's existing environmental programs and commitments apply.[a] Preactivity surveys required in a few cases, based on potential for take and species' biological susceptibility.[b] General AMMs required. Additional species-specific AMMs may be required in some cases. Compensation required in natural vegetation; compensation acreage is based on presumption of take.

Level of Effect	Definition	Conservation Approach Under Proposed Action
Medium disturbance	Activity disturbs 0.1–0.5 acre per event, on average, and could result in minor or greater adverse effects on habitat.	PG&E's existing environmental programs and commitments apply.
		Preactivity surveys required.
		General AMMs required.
		Additional, more comprehensive (species-specific) AMMs required.
		Compensation required in natural vegetation.
Large disturbance	Activity disturbs more than 0.5 acre per event and has the potential for greater adverse effects on habitat.	PG&E's existing environmental programs and commitments apply.
		Preactivity surveys required.
		General AMMs required.
		Additional, more comprehensive (species-specific) AMMs required.
		Compensation required in natural vegetation.
Other disturbance	Activity does not result in habitat loss.	PG&E's existing environmental programs and commitments apply.
		No preactivity surveys required.
		General AMMs required.
		No compensation necessary.

[a] See *PG&E's Existing Environmental Programs and Practices* above for a description of the training and best management practices (BMPs) entailed.

[b] Additional information on when preactivity surveys are required for small disturbance activities is provided in the following section. See Chapter 4 (*Conservation Strategy*) of the proposed HCP, presented as Appendix B of this EIS/EIR, for additional information.

Where impacts cannot be avoided, the proposed HCP provides a systematic process to ensure that they are compensated for. Compensation will be proposed in 5-year increments. As activities occur over the 5-year period subsequent to advanced compensation, PG&E will track actual impact acreages, and any compensation surpluses will be addressed by adjusting the compensation requirement during the subsequent 5-year compensation period. Toward the end of each 5-year period, the amount of available advance compensation will decline. If it appears that the amount of compensation required will exceed the amount remaining in that 5-year increment, PG&E will either purchase the next 5-year increment early, or purchase sufficient compensation so that project compensation stays ahead of impacts. By providing compensation in 5-year increments and purchasing additional compensation lands early if it appears that they will run out of excess compensation, PG&E will stay ahead of project impacts.

There is some uncertainty with respect to actual effects for very limited distribution wildlife and very rare plants. The HCP is written to avoid, minimize, and mitigate effects to all covered species, but pre-activity surveys for the rarest wildlife species (i.e., riparian brush rabbit, Buena Vista lake shrew, riparian

woodrat, and limestone salamander) will ultimately determine if there is the potential for an effect and if a particular activity needs to be mitigated; in these instances, mitigation must occur in advance of the impact. Potential effects for the very rare plant species will need to be similarly determined. In instances where the rarest of plants could be affected, substantial efforts will be made to avoid and minimize effects, and if this is not possible, the effects will be mitigated as soon as possible within 2 years of the effect.

Under the proposed HCP, all permanent losses of habitat suitable for one or more of the species covered in the HCP (*suitable habitat*) will be compensated at a 3:1 ratio (3 acres created, restored, or conserved for every acre lost), and temporary losses of suitable habitat will be compensated at a ratio of 0.5:1. Loss of wetlands, including vernal pools, will be compensated at a 3:1 ratio (3 acres preserved for each acre directly affected) using existing mitigation banks. Temporary effects on agricultural fields and developed or ruderal lands are excluded from compensation, because such areas are regularly disturbed, and the effects of O&M activities are expected to be consistent with existing conditions.

Compensation will be required both for temporary disturbance of habitat and for permanent habitat loss. As a result, it will involve a larger area than the habitat actually lost. Over the long term, the net area of habitat available will increase further, because the majority if not all of the temporary disturbance associated with O&M activities is expected to fully recover within several years.

For activities with the potential to disturb 0.1 acre or more (medium and large disturbance activities), habitat losses will be projected based on information collected during the required preactivity surveys. For activities that disturb less than 0.1 acre (small disturbance activities), and for medium disturbance activities that are not preceded by a survey (for example, emergency activities), the total area of disturbance will be calculated based on the typical acreage affected per event and the number of events expected to occur. To estimate the portion of the total disturbed area representing habitat suitable for a particular covered species—i.e., the area of habitat requiring compensation—the total disturbed area will be multiplied by the percentage of disturbed habitat identified as suitable for that species by biologists conducting preactivity surveys for other activities in the same area. The required compensation acreage will then be calculated based on the estimated habitat loss, using the compensation ratios presented in the preceding section (except for losses of Valley elderberry longhorn beetle habitat, which follow specific procedures outlined by USFWS, as described in the proposed HCP, included as Appendix B of this EIS/EIR).

Compensation lands will be required to offer habitat characteristics similar to those of the lands disturbed or lost as a result of O&M activities. Depending on the species and habitat requiring compensation, it may be sufficient to provide suitable habitat; in other cases, habitat that is known to be occupied may be required. Selection of compensation lands will be subject to USFWS and DFG approval.

PG&E proposes several approaches to providing appropriate compensation lands:

- purchase of conservation lands,
- purchase of mitigation credits from existing mitigation banks,
- establishment of conservation easements on lands currently in PG&E ownership, and
- purchase of conservation easements on non–PG&E lands.

Other options include donations to conservation organizations, and using habitat enhancement as compensation. PG&E expects to emphasize purchase of compensation lands, purchase of credits from mitigation banks, and use of existing PG&E lands.

Requirements of Master Streambed Alteration Agreement—Proposed Action

The proposed action would include development of a streambed alteration agreement between PG&E and DFG, pursuant to Section 1602 of the California Fish and Game Code. As identified above, DFG is currently revising the draft agreement to reflect the latest updates to the California Fish and Game Code. However, DFG anticipates that it will be a long-term, program-scale agreement that extends for the lifespan of the proposed HCP and permits. For convenience, this draft EIS/EIR refers to a *master streambed alteration agreement*.

The master streambed alteration agreement is expected to cover all O&M and minor construction activities enabled under the proposed action. Thus, it would cover the variety of operations-, maintenance-, and construction-related activities that take place within the bed, bank, and channel of intermittent and permanent waterways. Some examples include installations that require excavation or trenching in the bed, bank, or channel of a waterway; removal of riparian vegetation; temporary or permanent vehicle crossings; stream diversions; use of rip-rap; and jack and bore operations.

The purpose of the master streambed alteration agreement will be to describe procedures to which PG&E has committed to avoid and minimize the potential effects of O&M and minor construction activities on habitat in watercourses with a defined bed and bank geomorphology, and the fish and wildlife that rely on these resources. As the agreement is developed, it will identify the jurisdictional waters that could be affected under the proposed action, and which are therefore covered by the agreement. The master agreement is envisioned as an “umbrella” document embodying a set of provisions that would be implemented as a condition of working within the bed, bank, or stream of any covered water body. DFG anticipates that it will include a range of provisions and requirements generally similar to the following. Additional types of measures may also be developed for inclusion.

- Vehicle access to rivers, streams, and lakes will be limited to a predetermined ingress and egress corridor on existing roads. New access routes will be limited to the number and width required for safe operation for that location. Vehicle corridors will be flagged. All other natural areas will remain off-limits to vehicles.
- All fill will be limited to the minimal amount necessary to accomplish the activity. Excess material will be removed from the project site and disposed of in a legal manner.
- No native soil may be pushed into the watercourse's high flow channel. If grading of the banks is required, all material will be graded away from the watercourse.
- Grading of the bed and bank will be kept to a minimum to install facilities.
- The bank and streambed will be restored to near original condition as soon as appropriate upon completion of the stream zone activity.
- If the watercourse channel has been altered during the operations, its low flow channel will be returned as nearly as possible to its preactivity state, including its shape and gradient. If necessary, low-flow shape and gradient may be modified in order to maintain low flow.
- Discharge of sediment will be avoided to the maximum extent practicable. In no case will the discharge of sediment result in amounts deleterious to fish.
- If prolonged turbidity may be created, the flow will be diverted around the work area.
- If it is necessary to move equipment across a flowing watercourse, such operations will be conducted without causing a prolonged visible increase in watercourse turbidity. For repeated crossings, a bridge, culvert, or rock-lined crossing will be installed.
- Equipment may be operated in the channel of flowing watercourses only as may be necessary to construct crossings; install palisades; or install grout mats or any other protective structure.
- Temporary diversion structures used to isolate work areas will be constructed in a manner that prevents seepage from the work area. Said structures will be constructed of nonerodible materials. The structures, including any fill or trapped sediments, will be removed when the activity is complete.
- All wet fords will have unarmored portions of the approaches rocked with at least 4 inches compacted depth of rock, or will be paved or otherwise armored from the edge of the watercourse for a minimum of 25 feet, or to the nearest waterbar, to prevent tracking of soil into the crossing.
- Staging areas for equipment, materials, fuels, lubricants, and solvents will be located outside the stream channel and banks and away from all preserved aquatic resources. All stationary equipment—such as motors, pumps, generators, compressors, and welders—that must be within the stream zone will be positioned over drip pans.

- Equipment entering the stream zone will be inspected daily for leaks that could introduce deleterious materials into the watercourse.

A project-specific notification process will likely be set up to ensure that DFG concurs that a proposed activity is covered by the agreement. DFG may also use the notification process to incorporate any additional site-specific measures identified as appropriate.

Alternatives to the Proposed Action

NEPA and CEQA Requirements

NEPA and its implementing regulations require that an EIS evaluate a reasonable range of feasible alternatives to the proposed action. Although the No Action Alternative is not the baseline for evaluating environmental effects, the EIS must also evaluate the No Action Alternative, to allow decision makers to compare the effects of approving the proposed action with the effects of not approving it. Alternatives must be evaluated in the same level of detail provided for the proposed action (40 CFR 1502.14).

CEQA requires that an EIR consider alternatives that would avoid or reduce one or more of the significant impacts identified for the proposed project. Under the state's CEQA Guidelines, the EIR does not need to consider all possible alternatives; rather, the alternatives considered should be limited to a reasonable range that would meet the project objectives, appear to be feasible, and would avoid or substantially lessen at least one of the project's significant environmental effects. Like NEPA, CEQA requires analysis of the No Project Alternative to allow decision makers to assess the effects of not moving forward with the proposed project. CEQA does not require the alternatives to be evaluated in the same level of detail as the proposed project. However, EIRs are required to include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project or program (CEQA Guidelines Sec. 15126[d], 15126.6[a], 15126.6[f]).

Approach to Developing Alternatives

Under the federal and state Endangered Species Acts, PG&E must ensure that if take of state- or federally listed species occurs as a consequence of any its activities, such take is minimized to the extent feasible and is fully compensated for by appropriate mitigation measures—and hence, that take will not endanger the long-term viability of any listed species or its habitat. This is the core of the purpose and need identified for the proposed action: to provide for the long-term conservation of threatened and endangered species and their habitats while allowing PG&E to continue a program of essential O&M activities that enable reliable delivery of natural gas and electricity service, as required by the company's CPUC mandate.

Consistent with the identified purpose and need, alternatives development focused on alternate strategies to ensure conservation of special-status species with the potential to be affected by the O&M program. Primary screening addressed conservation efficacy. Secondary screening addressed feasibility. Following are the screening criteria used to select approaches for EIS/EIR analysis; only alternatives meeting all three criteria were advanced.

1. The alternative would provide for the long-term conservation of threatened and endangered species with the potential to be affected by the O&M program.
2. The alternative has the potential to be feasibly implemented.
3. The alternative would support an effective and fiscally responsible O&M program.

Alternatives Analyzed in this EIS/EIR

In addition to the proposed action, this EIS/EIR analyzes the following "action" alternatives.

- Alternative 1—HCP with Reduced Take.
- Alternative 2—HCP with Enhanced Compensation.
- Alternative 3—HCP with Reduced Number of Covered Species.

As required by both NEPA and CEQA, this EIS/EIR also analyzes the No Action Alternative. Additional alternatives considered during the screening process but not carried forward for detailed EIS/EIR analysis are discussed in *Alternatives Eliminated from Further Consideration* below.

Alternative 1—HCP with Reduced Take

Overview of Components—Alternative 1

Like the proposed action, Alternative 1 would entail development of an HCP (referred to in this document as the Alternative 1 HCP) to support applications for federal and state permits and a master streambed alteration agreement.

As discussed above, USFWS has full discretionary authority over the issuance of Section 10 permits, and, having consulted with PG&E and reviewed the Alternative 1 HCP, could choose not to approve it, in which case no Section 10 permit would be issued. Similarly, following its review, DFG could elect to deny a state take permit and/or streambed alteration agreement. In order to fully analyze the potential environmental outcomes of Alternative 1, this EIS/EIR assumes that the Alternative 1 HCP would be approved, federal and state take permits would be issued, and a master streambed alteration agreement would be enacted.

Based on these assumptions, Alternative 1 would include the following components.

- Federal components:
  - approval of Alternative 1 HCP and implementation agreement,
  - issuance of incidental take permit,
- State components:
  - issuance of Section 2081 incidental take permit,
  - entry into master streambed alteration agreement with PG&E.

As with the proposed action, approval of the Alternative 1 HCP, issuance of federal and state take permits, and adoption of the streambed alteration agreement would enable PG&E to continue its San Joaquin Valley O&M program, including all current BMPs, methods, and techniques. PG&E would also be committed to new environmental measures and protections enacted under the HCP; differences in these measures are the key distinction between the proposed action and Alternative 1—HCP with Reduced Take.

Activities Analyzed Under Alternative 1

Ongoing Operations and Maintenance Activities

PG&E's program of O&M and minor construction activities would be the same under Alternative 1 as that described above for the proposed action. In addition, as described for the proposed action, all of PG&E's standard methods, techniques, and procedures, including existing environmental programs and practices and BMPs, would continue to apply.

New Environmental Commitments Enacted by Alternative 1 HCP—Provisions for Reduced Take

Like the proposed action, Alternative 1 would enact new environmental commitments. The conservation strategy embodied by the Alternative 1 HCP would be very similar to that described above for the proposed HCP, incorporating measures to avoid and minimize impacts; preactivity surveys to assess the potential level and nature of impact resulting from O&M activities, where warranted; and compensation for impacts that cannot be avoided. As with the proposed action, compensation would represent a last resort—the Alternative 1 HCP's conservation approach would emphasize the need to avoid and minimize impacts to the fullest extent possible.

The AMMs implemented under Alternative 1 would be the same as those described above for the proposed HCP, but they would be implemented more comprehensively. As with the proposed action, all activities except those in the "other disturbance" category would be required to implement general AMMs. However, where the proposed HCP requires additional species-specific AMMs for certain activities in the small disturbance effect category and for all activities in the moderate and large disturbance categories, the Alternative 1 HCP would require their application for all small, moderate, and large disturbance activities, as summarized in Table S-5. This additional level of stringency, intended to

reduce take below the level anticipated with the proposed action, is the key distinction between Alternative 1 and the proposed action.

Table S-5. Level of Effect and Conservation Approach—Alternative 1

Level of Effect	Definition	Conservation Approach Under Alternative 1
Small disturbance	Activity disturbs less than 0.1 acre per event and has a very low potential to result in adverse effects on habitat, or would result in very limited adverse effects. Includes vegetation management activities, which disturb habitat by removing or reducing vegetation, but do not result in ground disturbance.	PG&E's existing environmental programs and commitments apply. Preactivity surveys required. General AMMs required. Additional, more comprehensive (species-specific) AMMs required. Compensation required in natural vegetation.
Medium disturbance	Activity disturbs 0.1–0.5 acre per event on average, and could result in minor or greater adverse effects on habitat.	PG&E's existing environmental programs and commitments apply. Preactivity surveys required. General AMMs required. Additional, more comprehensive (species-specific) AMMs required. Compensation required in natural vegetation.
Large disturbance	Activity disturbs more than 0.5 acre per event and has the potential for greater adverse effects on habitat.	PG&E's existing environmental programs and commitments apply. Preactivity surveys required. General AMMs required. Additional, more comprehensive (species-specific) AMMs required. Compensation required in natural vegetation.
Other disturbance	Activity does not result in habitat loss.	PG&E's existing environmental programs and commitments apply. No preactivity surveys required. Some AMMs required. No compensation required.

Master Streambed Alteration Agreement—Alternative 1

Like the proposed action, Alternative 1 would include development of a master streambed alteration agreement between PG&E and DFG, pursuant to Section 1602 of the California Fish and Game Code. The purpose of this agreement would be to describe procedures to which PG&E has committed to avoid and minimize the potential effects of O&M and minor construction activities on habitat in watercourses with a defined bed and bank geomorphology and on the fish and wildlife that rely on such resources. DFG anticipates that the master streambed alteration agreement under Alternative 1 would include provisions and requirements similar to those discussed above for the proposed action.

Alternative 2—HCP with Enhanced Compensation

Overview of Components—Alternative 2

Like the proposed action, Alternative 2 would entail development of an HCP (referred to here as the Alternative 2 HCP) to support applications for federal and state permits and a master streambed alteration agreement.

As discussed above, USFWS has full discretionary authority over the issuance of Section 10 permits, and, having consulted with PG&E and reviewed the Alternative 2 HCP, could choose not to approve it, in which case no Section 10 permit would be issued. Similarly, following its review, DFG could elect to deny a state take permit and/or streambed alteration agreement. In order to fully analyze the potential environmental outcomes of Alternative 2, this EIS/EIR assumes that the Alternative 2 HCP would be approved, federal and state take permits would be issued, and a master streambed alteration agreement would be enacted. Based on these assumptions, Alternative 2 would include the following components.

- Federal components:
  - approval of Alternative 2 HCP and implementation agreement,
  - Section 10 consultation and issuance of incidental take permit.
- State components:
  - issuance of Section 2081 incidental take permit,
  - entry into master streambed alteration agreement with PG&E.

As with the proposed action, approval of the Alternative 2 HCP and implementation agreement, issuance of federal and state take permits, and adoption of the streambed alteration agreement would enable PG&E to continue its San Joaquin Valley O&M program, including all current BMPs, methods, and techniques. PG&E would also be committed to new environmental measures and protections enacted under the HCP; differences in these measures, and specifically in requirements for compensation, are the key distinction between the proposed action and Alternative 2—HCP with Enhanced Compensation.

Activities Analyzed Under Alternative 2

Ongoing Operations and Maintenance Activities

PG&E's program of O&M and minor construction activities would be the same under Alternative 2 as that described above for the proposed action. In addition, as described for the proposed action, all of PG&E's standard methods, techniques, and procedures, including existing environmental programs and practices and BMPs, would continue to apply.

New Environmental Commitments Enacted by Alternative 2 HCP—Provisions for Enhanced Compensation

Like the proposed action and Alternative 1, Alternative 2 would enact new environmental commitments. The conservation strategy embodied by the Alternative 2 HCP would be similar to that described above for the proposed

HCP, incorporating measures to avoid and minimize impacts; preactivity surveys to assess the potential level and nature of impact resulting from O&M activities, where warranted; and compensation for impacts that cannot be avoided. As with the proposed action, compensation would represent a last resort—the Alternative 2 HCP's conservation approach would emphasize the need to avoid and minimize impacts to the fullest extent possible.

The AMMs implemented under Alternative 2 would be the same as those described above for the proposed HCP, and would be implemented in essentially the same way, as summarized in Table S-6. The key distinction between Alternative 2 and the proposed action is that Alternative 2 would provide enhanced compensation for impacts that cannot be avoided.

Table S-6. Level of Effect and Conservation Approach—Alternative 2

Level of Effect	Definition	Conservation Approach Under Alternative 2
Small disturbance	Activity disturbs less than 0.1 acre per event and has a very low potential to result in adverse effects on habitat, or would result in very limited adverse effects. Includes vegetation management activities, which disturb habitat by removing or reducing vegetation, but do not result in ground disturbance.	PG&E's existing environmental programs and commitments apply. Preactivity surveys required in a few cases. General AMMs required. Additional species-specific AMMs may be required in some cases. Compensation at enhanced ratios required in natural vegetation. Triggers same as for proposed action.
Medium disturbance	Activity disturbs 0.1–0.5 acre per event and could result in minor or greater adverse effects on habitat.	PG&E's existing environmental programs and commitments apply. Preactivity surveys required. General AMMs required. Additional, more comprehensive (species-specific) AMMs required. Compensation at enhanced ratios required in natural vegetation. Triggers same as for proposed action.
Large disturbance	Activity disturbs more than 0.5 acre per event and has the potential for greater adverse effects on habitat.	PG&E's existing environmental programs and commitments apply. Preactivity surveys required. General AMMs required. Additional, more comprehensive (species-specific) AMMs required. Compensation at enhanced ratios required in natural vegetation. Triggers same as for proposed action.
Other disturbance	Activity does not result in habitat loss.	PG&E's existing environmental programs and commitments apply. No preactivity surveys required. General AMMs required. No compensation required.

As with the proposed action, the Alternative 2 HCP would require that PG&E propose compensation in advance 5-year increments, in order to ensure that compensation outpaces impacts. As activities occur over the 5-year period subsequent to advanced compensation, PG&E would track actual impact acreages. Any compensation surpluses would be addressed by adjusting the compensation requirement during the subsequent 5-year compensation period, and if it appears that the amount of compensation required would exceed the amount remaining in that 5-year increment, PG&E would either purchase the next 5-year increment early, or purchase sufficient compensation so that project compensation stays ahead of impacts. By providing compensation in 5-year increments and purchasing additional compensation lands early if it appears that they will run out of excess compensation, PG&E will stay ahead of project impacts.

As described for the proposed HCP, there is some uncertainty with respect to actual effects for very limited distribution wildlife and very rare plants. Like the proposed HCP, the Alternative 2 HCP would be written to avoid, minimize, and mitigate effects on all covered species, but pre-activity surveys for the rarest wildlife species (i.e., riparian brush rabbit, Buena Vista lake shrew, riparian woodrat, and limestone salamander) would ultimately determine the potential for an effect and whether a particular activity needs to be mitigated; in these instances, mitigation would be required to occur in advance of the impact. Potential effects for the very rare plant species would need to be similarly determined. In instances where the rarest of plants could be affected, substantial efforts will be made to avoid and minimize effects, and if this is not possible, the effects would be mitigated as soon as possible within 2 years of the effect, as under the proposed HCP.

Under Alternative 2, both permanent and temporary losses of suitable habitat would be compensated at a 3:1 ratio, with 3 acres created or restored for every acre lost. Loss of wetlands, including vernal pools, would be compensated at a 3:1 ratio (3 acres restored or created for each acre directly affected) if compensation is accomplished through an existing mitigation bank, and at a 6:1 ratio (3 acres preserved and 3 acres created for each acre affected) if compensation takes place outside existing banks. Temporary effects on agricultural fields and developed or ruderal lands would be excluded from compensation under Alternative 2, as under the proposed action, because such areas are regularly disturbed and the effects of O&M activities are expected to be consistent with existing conditions.

Because compensation would be required both for temporary disturbance of habitat and for permanent habitat loss, mitigation for O&M effects would typically involve a larger area than the habitat actually lost. Compensation acreage would exceed the actual acreage of impact under the proposed HCP as well, but the margin of exceedance would be greater under Alternative 2 because of this alternative's enhanced compensation ratios.

The same process would be used to identify compensation needs under Alternative 2 as under the proposed action. For activities with the potential to disturb 0.1 acre or more, anticipated habitat losses would be calculated based on

the results of preactivity surveys. For small disturbance activities, habitat losses would be estimated based on typical acreages affected per event, and the number of events expected to occur. The compensation need would then be identified based on the anticipated habitat loss and the compensation ratios presented in the preceding section, except for losses of VELB habitat, which are addressed in detail in the proposed HCP (see Appendix B of this EIS/EIR).

Desired characteristics of compensation lands would be the same under Alternative 2 as those presented for the proposed action. To qualify as compensation lands, a parcel would be required to offer habitat similar to the lands disturbed or lost as a result of O&M activities. Depending on the species and habitat requiring compensation, it might be sufficient to provide suitable habitat, but in other cases, habitat known to be occupied would likely be required. In all cases, selection of compensation lands would be subject to USFWS and DFG approval.

As described above for the proposed action, several approaches are available for providing the compensation required under Alternative 2. These include

- purchasing lands for mitigation use,
- purchasing mitigation credits from existing mitigation banks,
- using lands currently in PG&E ownership, and
- purchasing conservation easements; as well as
- making donations to conservation organizations, or using habitat enhancement as compensation.

The approaches could be combined in a variety of ways. Compensation is expected to emphasize purchase of compensation lands, purchase of credits from mitigation banks, and use of existing PG&E lands, but a broader palette of approaches could be necessary for some activities because of the increased compensation requirements that would be enacted under Alternative 2.

Master Streambed Alteration Agreement—Alternative 2

Like the proposed action, Alternative 2 would include development of a master streambed alteration agreement between PG&E and DFG, pursuant to Section 1602 of the California Fish and Game Code. The purpose of this agreement would be to describe procedures to which PG&E has committed to avoid and minimize the potential effects of O&M and minor construction activities on habitat in watercourses with a defined bed and bank geomorphology and on the fish and wildlife that rely on such resources. DFG anticipates that the master streambed alteration agreement under Alternative 2 would include provisions and requirements similar to those discussed above for the proposed action.

Alternative 3—HCP with Reduced Number of Covered Species

Overview of Components—Alternative 3

Like the proposed action and the other action alternatives, Alternative 3 would entail development of an HCP (referred to here as the Alternative 3 HCP) to support applications for federal and state permits and a master streambed alteration agreement.

As discussed above, USFWS has full discretionary authority over the issuance of Section 10 permits, and, having consulted with PG&E and reviewed the HCP, could choose not to approve it, in which case no Section 10 permit would be issued. Similarly, following its review, DFG could elect to deny a state take permit and/or streambed alteration agreement. In order to fully analyze the potential environmental outcomes of Alternative 3, this EIS/EIR assumes that the Alternative 3 HCP would be approved, federal and state take permits would be issued, and a master streambed alteration agreement would be enacted. Based on these assumptions, Alternative 3 would include the following components.

- Federal components:
  - approval of Alternative 3 HCP and implementation agreement,
  - issuance of incidental take permit.
- State components:
  - issuance of Section 2081 incidental take permit,
  - entry into master streambed alteration agreement with PG&E.

As with the proposed action, approval of the Alternative 3 HCP and implementation agreement, issuance of federal and state take permits, and adoption of the streambed alteration agreement would enable PG&E to continue its San Joaquin Valley O&M program, including all current BMPs, methods, and techniques. PG&E would also be committed to new environmental measures and protections enacted under the HCP. The principal difference between Alternative 3 and the proposed action is that the Alternative 3 HCP would cover fewer species than the proposed HCP, focusing on those identified as most likely to be affected by O&M–related take. If the need arose, potential take of other species would be addressed on a case-by-case basis.

The Alternative 3 HCP would cover 13 wildlife species and 31 species of plants, listed in Table S-7. All of these species meet 2 criteria:

- they are listed under either the federal Endangered Species Act (ESA) or California Endangered Species Act (CESA), or both; and
- more than 2 acres of the species' habitat is likely to be disturbed by O&M activities each year.

Table S-7. Species Covered by San Joaquin Valley O&M Habitat Conservation Plan—Alternative 3

Wildlife	Plants	
Valley elderberry longhorn beetle	Large-flowered fiddleneck	Congdon's woolly sunflower
California tiger salamander	Lesser saltscale	Delta button-celery
Limestone salamander	Bakersfield smallscale	Striped adobe-lily
Blunt-nosed leopard lizard	Big tarplant	Pale-yellow layia
Swainson's hawk	Mariposa pussypaws	Comanche Point layia
White-tailed kite	Succulent owl's-clover	Legenere
Golden eagle	California jewelflower	Mason's lilaeopsis
Bald eagle	Hoover's spurge	Mariposa lupine
California black rail	Slough thistle	Showy madia
Western burrowing owl	Mariposa clarkia	San Joaquin woollythreads
Giant kangaroo rat	Merced clarkia	Colusa grass
San Joaquin (Nelson's) antelope squirrel	Springville clarkia	Bakersfield cactus
San Joaquin kit fox	Hispid bird's-beak	San Joaquin Valley Orcutt grass
	Palmate-bracted bird's-beak	Hartweg's golden sunburst
	Kern mallow	San Joaquin adobe sunburst

The following species covered under the proposed HCP would not be covered under the Alternative 3 HCP: the vernal pool crustaceans, limestone salamander, California red-legged frog, giant garter snake, bank swallow, tricolored blackbird, Buena Vista Lake shrew, riparian brush rabbit, riparian woodrat, Tipton kangaroo rat, and some 11 plant species. All other species covered under the proposed HCP would be covered under Alternative 3.

Master Streambed Alteration Agreement—Alternative 3

Like the proposed action, Alternative 3 would include development of a master streambed alteration agreement between PG&E and DFG, pursuant to Section 1602 of the California Fish and Game Code. The purpose of this agreement would be to describe procedures to which PG&E has committed to avoid and minimize the potential effects of O&M and minor construction activities on habitat in watercourses with a defined bed and bank geomorphology and on the fish and wildlife that rely on such resources. DFG anticipates that the master streambed alteration agreement under Alternative 3 would include provisions and requirements similar to those discussed above for the proposed action.

Activities Analyzed Under Alternative 3

Ongoing Operations and Maintenance Activities

PG&E's program of O&M and minor construction activities would be the same under Alternative 3 as that described above for the proposed action. In addition, as described for the proposed action, all of PG&E's standard methods, techniques, and procedures, including existing environmental programs and practices and BMPs, would continue.

New Environmental Commitments Enacted by Alternative 3 HCP

Except for commitments specific to species not covered under Alternative 3, the Alternative 3 HCP would enact the same environmental commitments as the proposed action. Environmental commitments would be triggered and implemented as described above for the proposed action.

Alternative 4—No Action/No Project

Overview—No Action Alternative

Under the No Action Alternative, PG&E would continue to operate and maintain its natural gas and electricity facilities under the current scenario. No regional, programwide HCP would be developed for the San Joaquin Valley O&M program, and PG&E would not seek "umbrella" regional take permits from USFWS and DFG or a master streambed alteration agreement from DFG. Instead, PG&E would continue to address threatened and endangered species issues by consulting with USFWS and DFG and undertaking conservation planning and permit applications on a case-by-case basis.

Activities Analyzed Under No Action Alternative

Under the No Action Alternative, PG&E would move forward with the same program of O&M activities described for the proposed action, including all standard methods, techniques, programs, practices, and BMPs. As identified above, case-by-case consultation with USFWS and DFG would likely be required for many activities, and permit applications for individual activities or series of activities would require development of conservation plans. However, it is not possible to predict the outcomes of conservation planning, consultation, or permit applications at this time without circumventing the review and evaluation process mandated by the federal and state Endangered Species Acts and the California Fish and Game Code; although these processes would likely result in additional avoidance and mitigation measures applied to some activities, such measures cannot be identified at this time. Consequently, this EIS/EIR considers only the O&M activities described above in analyzing the impacts of the No Action Alternative. Additional NEPA and CEQA environmental review would likely be required in the event that federal or state permits are issued for future O&M activities under the No Action Alternative.

Alternatives Eliminated from Further Consideration

The alternatives development process pursued a variety of avenues to meet the identified purpose and need of providing for conservation of potentially affected species while supporting an effective and fiscally responsible O&M program. Alternatives considered during the screening process and eliminated from further detailed analysis in this EIS/EIR include: changing O&M practices; participating in existing HCPs; relying on compensation alone (implementing no AMMs); and providing temporary (short-term) compensation for recoverable effects. The following sections summarize each approach and the reasons for its dismissal.

Changed Practices

This approach was based on the idea that PG&E might be able to modify its O&M program sufficiently that it would not result in take, while still enabling efficient, cost-effective, and reliable natural gas and electric service. Various types of modifications were considered and ultimately eliminated from detailed analysis, including the following.

- **Eliminating some activities from the program—**Evaluated as infeasible because most of the activities in the program are mandated by FERC or CPUC for public safety and system reliability; eliminating activities could reduce the program's efficacy and/or conflict with regulatory requirements.
- **Modifying some program activities—**Evaluated as infeasible because the program comprises those activities identified as necessary to provide the level of service and safety required by FERC and CPUC regulations; most program activities could not be modified sufficiently to eliminate the potential for take while still maintaining an acceptable level of effectiveness. Legal constraints also specifically limit PG&E's ability to modify some activities.
- **Seasonally restricting some or all activities—**Evaluated as logistically and economically prohibitive. Narrowing the O&M working window enough to eliminate the potential for take would reduce it to several months per year, substantially impeding PG&E's ability to respond to system emergencies and potentially compromising the safety and reliability of natural gas and electric service. Some seasonal restrictions are also precluded by legal requirements.
- **Conducting preactivity surveys for all activities—**Evaluated as financially infeasible and unlikely to satisfy legal requirements under ESA, because an expanded program of preactivity surveys alone would not appreciably reduce effects on special-status species (to reduce take effectively, preactivity surveys must be coupled with AMMs).
- **Conducting preactivity surveys for most activities—**Also evaluated as financially infeasible and unlikely to satisfy legal requirements under ESA.

Participation in Existing San Joaquin Valley HCPs

In recent years, a number of local governments in the San Joaquin Valley area have been working to develop comprehensive habitat and multi-species conservation plans within the boundaries of their respective jurisdictions. PG&E considered participating in some or all of these existing plans as a means of meeting ESA and CESA requirements regarding take of listed species. However, although these plans provide for the protection and conservation of wildlife habitat and sensitive plant species, they generally address municipal concerns related to permanent loss of habitat as a result of development. By contrast, PG&E's facilities span many local government jurisdictions, and although it leads to some permanent loss of habitat, the company's O&M program results primarily in temporary, recoverable habitat disturbance and unavailability. Consequently, the strategies appropriate for existing municipal conservation

plans fail to provide a "best fit" for PG&E's O&M program. Moreover, PG&E operates—and is regulated—at a statewide scale; compliance with numerous local conservation plans could result in inconsistent policies and practices across the company.

Compensation Only

Due to the small, localized nature of many of O&M effects, PG&E considered a *compensation only* approach, which would provide larger tracts of mitigation lands in exchange for simpler logistics (fewer AMMs) and reduced administrative requirements (reduced need to administer and track AMMs). This strategy would offer the benefit of preserving more extensive tracts of habitat than the proposed action. However, the regulations implementing the federal ESA specifically require that the project proponent implement measures to minimize effects on federally listed species, as well as compensating for those that cannot be adequately reduced or avoided. The compensation only approach would not meet that requirement, and was accordingly eliminated from further analysis.

Temporary Compensation for Temporary Effects

Because the majority of the O&M program's effects are expected to continue to be temporary and recoverable, PG&E considered an alternative that would allow temporary compensation for recoverable habitat disturbance while requiring long-term compensation for permanent loss of habitat. Temporary compensation would be provided by renting mitigation credits through existing area mitigation banks. This approach was eliminated from detailed analysis because it is inconsistent with standard compensation practices.

Environmental Consequences and Mitigation Strategies

Incremental and Cumulative Effects

Analysis in an EIS/EIR focuses on evaluating a proposed undertaking's *incremental effects*—that is, the effects resulting from that project alone. Both NEPA and CEQA also require lead agencies to evaluate a proposed undertaking's potential to contribute to *cumulative impacts* created by repeated activities in the project or program area. Cumulative impacts can represent the additive effect of repeated activities taking place as part of a single proposed undertaking, or the combined effect of activities taking place under more than one proposed undertaking (Council on Environmental Quality 1997).

Table S-8 summarizes the proposed action's anticipated environmental outcomes and the potential mitigation strategies identified in this EIS/EIR. It includes the proposed action's incremental impacts as well as its potential to contribute to cumulative impacts in the action area (see Figure S-1 for extent of action area).

As identified in *Joint Compliance Approach* above, this document is intended to meet the requirements of both NEPA and CEQA. CEQA requires an EIR to identify *significant* impacts—that is, impacts that exceed a recognized threshold of severity and thus require *mitigation*, measures or activities adopted to avoid the impact, reduce its severity, or compensate for it. NEPA embodies a similar requirement that an EIS identify approaches for mitigating adverse environmental effects. To provide the degree of specificity required by CEQA, the following terminology is used to evaluate the level of significance of incremental impacts.

- A finding of *no impact* is made when the analysis concludes that the proposed action would not affect the particular environmental resource.
- An impact is considered *less than significant* if the analysis concludes that there would be no substantial adverse change in the environment and that no mitigation is needed.
- An impact is considered *less than significant with mitigation* if the analysis concludes that there would be no substantial adverse change in the environment with the inclusion of the mitigation measure(s) described.
- An impact is considered *significant* or *potentially significant* if the analysis concludes that there could be a substantial adverse effect on the environment.
- An impact is considered *significant and unavoidable* if the analysis concludes that there could be a substantial adverse effect on the environment, and no feasible mitigation measures are available to reduce the impact to a less-than-significant level.
- An impact is considered *beneficial* if the analysis concludes that there would be a positive change in the environment.

For resources known to be subject to a regional cumulative impact independent of the proposed action, the effects of the proposed action were analyzed as they would combine with the effects of other projects to contribute to the larger cumulative effect ("multi-project analysis"). For resources not believed to be subject to an existing regional cumulative effect, separate analysis of the proposed action's additive effects was necessary to meet the NEPA requirement to evaluate whether repeated activities under the same program would result in a cumulative effect. This requirement is particularly important for actions that, like the proposed action, have a long duration—30 years, in the case of the proposed action—and entail numerous repeated activities over that lifespan.

Potential for Growth Inducement

As a community grows, the environment—natural and "built"—is affected in many ways. Because of the potential for population growth to alter the human and natural environment, both NEPA and CEQA require environmental documents to evaluate a proposed undertaking's potential to induce population growth, and assess the potential indirect effects of any growth induced by the project. A proposed action is considered *growth inducing* if it directly or indirectly fosters economic or population growth or the construction of additional housing; or encourages other activities that could result in significant environmental effects (CEQA Guidelines Sec. 15126.2[d]). A project may also be considered growth inducing if it removes an existing obstacle to growth, such as insufficient transportation or water supply infrastructure. The following paragraphs summarize the proposed action's effects related to growth. Because all three action alternatives and the No Action Alternative would enable the same program of O&M and minor construction activities as the proposed action, this analysis also applies to the alternatives.

Direct Growth-Related Effects

As described in Chapter 2, the proposed action would enable several types of activities under the aegis of PG&E's San Joaquin Valley O&M program. These include minor construction such as replacing or upgrading facilities and extending electrical and natural gas service to supply new customers. Facilities upgrades and extension of service to additional customers would directly serve new growth. Although it is expected that new or extended infrastructure installed under the proposed action would be sited near existing infrastructure and development, their precise nature, number, and locations are uncertain at this time, and they could serve any combination of residential, commercial, and/or industrial uses. In addition, because of the way the electrical grid is operated, power provided by PG&E may also be routed to areas of California not directly served by PG&E, or to customers in other western states. Thus, the location, timing, and nature of growth served by the proposed action cannot be predicted with certainty at this time, but the overwhelming majority of such growth in California currently occurs as planned growth via the general plan process, and this is expected to continue to be the case in the future.

Provision of essential services without which growth cannot take place may be identified as "removing an obstacle to growth," which represents one type of growth inducement recognized by the state's CEQA guidelines (CEQA Guidelines Sec. 15126.2[d]). If utility service were expanded or upgraded *in advance of* the requirements of currently planned growth, rather than *in response to* needs identified to support currently planned growth, this could be considered growth inducing because essential services would be provided without which additional future growth could not occur. However, as discussed in Chapter 1, PG&E is legally required to provide new or expanded service as needs are identified through the local jurisdiction planning process, and the company expands its facilities and constructs new ones only in response to specific,

identified needs for service. In this sense, the O&M activities enabled by the proposed action are more properly considered growth accommodating rather than growth inducing. Moreover, Section 15126.2[d] of the state's CEQA Guidelines explicitly cautions against assuming that growth is "necessarily beneficial, detrimental, or of little significance to the environment." In light of these considerations, the proposed action's potential to induce growth is considered less than significant. No mitigation is required.

Indirect Growth-Related Effects

Growth served by new or expanded infrastructure installed under the proposed action would have some potential to result in corollary indirect impacts on natural and built environmental resources, including air quality, ambient noise, traffic infrastructure, water supply, and biological resources; and possibly also cultural and paleontological resources.

As identified above, the majority of any new growth served by new facilities constructed under the proposed action would likely occur as planned growth in areas that have undergone the general plan process. As such, it would be regulated by the goals and policies embodied in the applicable general plan, and by local ordinances and regulations that enact general plan policies, which would help to avoid and reduce potential adverse effects. Effects of growth on natural resources would be further buffered by standards and requirements of federal and state environmental regulations, including

- the federal and state Clean Air Acts;
- the federal Clean Water Act and applicable Basin Plans;
- California Senate Bills 610 and 221 of 2001, which prohibit approval of moderate-sized and large development projects without documentation that adequate water supply will be available to support the resulting new demand;
- the federal and state ESAs; and
- other federal, state, and local laws and regulations.

In addition, new development would almost certainly require separate environmental review under CEQA and/or NEPA, entailing further site- and project-specific analysis of environmental effects.

In any case, because PG&E only provides new or expanded service in response to—not in advance of—an area's identified need, and the proposed action's potential to *induce* growth has thus been evaluated as less than significant, its potential to result in adverse effects as outcomes of growth is also considered less than significant. No mitigation is required.

Environmental Sustainability

NEPA and its implementing regulations require that an EIS address several issues related to the environmental sustainability of the proposed action, including the balance between short-term uses of the environment and its long-term productivity; and the use of natural resources, particularly nonrenewable resources. The state's CEQA guidelines contain a related requirement to consider significant and irreversible environmental changes that could result from implementing a proposed project.

Short-Term Uses vs. Long-Term Productivity

Some of the O&M and minor construction activities that would occur under the proposed action could result in short-term impacts on various environmental resources, including air quality, ambient noise, traffic flow, and surface water quality. Some activities could also affect wildlife habitat and/or result in take of special-status species. However, the level of impact would be reduced by permit review needed to satisfy current regulatory requirements; PG&E's existing environmental commitments, which would continue in force under the proposed action; additional measures implemented through the proposed HCP, and mitigation for potential impacts on paleontological resources identified in Chapter 10 of this EIS/EIR. Consequently, the lead agencies have concluded that impacts would be less than significant for all resources, as discussed in Chapters 3 through 17. Moreover, the long-term goal of the proposed action is to protect, conserve and enhance the HCP-covered species and their habitats. As such, the proposed action is explicitly focused on avoiding, minimizing, and offsetting adverse effects and providing long-term benefit to the environment while allowing PG&E to proceed with a program of O&M activities essential to meeting the needs of some 4 million California utility customers.

Like the proposed action, Alternatives 1, 2, and 3 would all enact an HCP embodying a long-term conservation vision for special-status species and their habitats. Each alternative offers a different approach to providing long-term conservation benefits. Alternative 1 stresses measures to avoid take and habitat loss, while Alternative 2 emphasizes enhanced compensation for habitat loss. Alternative 3 follows the same strategy outlined in the proposed HCP but would cover fewer species, with any additional compensation needs addressed on a case-by-case basis, so the effort to regionalize a conservation approach could be less effective under Alternative 3. Consequently, while none of the alternatives would prioritize short- over long-term needs, Alternatives 1 and 2 would likely result in greater long-term benefits.

Under the No Action Alternative, no program-wide HCP would be enacted for PG&E's San Joaquin Valley O&M activities; PG&E would continue to address threatened and endangered species issues on a case-by-case basis. Consequently, although there would be no intent to deprioritize long-term environmental enhancement, in practice it would be much more difficult to implement a

consistent, regional conservation strategy, and short-term uses could be emphasized at the expense of long-term environmental health and productivity.

Use of Natural Resources

O&M activities enabled by the proposed action would require an ongoing commitment of a variety of nonrenewable (depletable) natural resources, including fossil fuels needed to produce vehicle fuels and lubricants as well as various plastics and other materials; and concrete, aggregate, sand, gravel, and steel for some types of maintenance and minor construction. In addition, some activities would require timber, which is a slowly renewable resource. Many activities would also require the use of water. Use of nonrenewable commodities such as petroleum, aggregate, and iron would represent an irreversible/ irretrievable commitment of resources, although moderate use of sustainably harvested timber would be recoverable over the long term. The magnitude and duration of increased demand for water would be limited, and water use is expected to be within the capacity of available supply, so the amount of water required for ongoing O&M and minor construction is also considered renewable over time.

In addition to material resources, O&M and minor construction tasks enabled by the proposed action would entail a commitment of energy to refine petroleum for fuels and to produce various chemicals used in maintenance, repair, and construction of electrical and natural gas infrastructure. Energy would also be required to recover and process resources such as aggregate, sand, and iron/steel; to produce concrete and other materials used for O&M and minor construction; and to harvest and mill timber. Energy use would represent an irreversible and irretrievable commitment of resources.

Because all of the alternatives would enable the same program of O&M activities, resource commitments under all action alternatives and the No Action Alternative would be very similar to those described for the proposed action.

Significant, Irreversible Environmental Changes

Implementing the proposed action could result in the following types of environmental changes.

- A small loss of agricultural land associated with facility expansion and new facility construction.
- Potential for minor new constraints on recreational use as a result of the need for new facilities and compensation lands.
- A small loss of topsoil due to construction of new facilities.
- Long-term effects related to hazardous materials use.

- A long-term benefit to biological resources, aesthetics, and air and water quality because of a long-term increase in acreage of conservation lands.

Under all of the action alternatives, habitat compensation acreages are expected to consistently exceed the actual acreages impacted. This would be particularly beneficial to biological resources, aesthetics, air quality, and water quality. The benefits would continue as long as compensation lands continue in conservation status. Benefits are considered irreversible, because the intent of the proposed action—and the legal requirement under the ESA—is permanent compensation for effects of O&M and minor construction activities.

At the same time, acquisition of lands for new facilities and for compensation use has the potential to impose minor constraints on agriculture and recreation. These constraints are also considered effectively irreversible. For example, any agricultural land converted for expansion of existing facilities and construction of new facilities would become permanently unavailable—and possibly also unsuitable—for agriculture; however, note that the coexistence of infrastructure situated in agricultural lands is considered a compatible use as farming or ranching operations are likely to continue unimpeded. Land acquired for compensation use would remain physically suitable for cultivation or grazing use, but would be protected in perpetuity for the benefit of biological resources, and would only be used for agricultural production (primarily grazing, as discussed in Chapter 4, *Agricultural Resources*) to the extent such use was consistent with the goals of habitat mitigation under the proposed HCP. However, as discussed in Chapter 4, the extent of agricultural lands converted to nonagricultural use would be very small, so the associated environmental change, although irreversible, is nonetheless considered less than significant. Constraints on recreational resources, although irreversible, are also expected to be less than significant, as discussed in Chapter 15 (*Recreation*). Similarly, the potential extent of topsoil loss would be small enough that, while any such loss would be irreversible, it is evaluated as less than significant (see Chapter 7, *Geology and Soils*).

As discussed in Chapters 14 (*Public Health and Environmental Hazards*) and 18 (*Cumulative Effects*), there is some potential for environmental contamination through the use of hazardous substances, including but not necessarily limited to fuels, lubricants, adhesives, paints, and paving media. However, in light of PG&E's existing program of hazardous materials training and BMPs, and additional protection afforded by permit review under the federal Clean Water Act, the risk is evaluated as incrementally less than significant. Moreover, in the event of a spill or release, most types of contamination likely to result from O&M or minor construction would represent reversible effects.

Comparison of Alternatives

Table S-9 summarizes the environmental outcomes expected for the three action alternatives and the No Action Alternative, including both adverse and beneficial

effects. The discussion in Table S-9 includes comparison between each alternative and the proposed action.

Environmentally Preferable/Environmentally Superior Alternative

NEPA and CEQA Requirements

NEPA requires lead agencies to identify the environmentally preferable alternative from the range of alternatives analyzed in an EIS. The *environmentally preferable alternative* refers to the alternative that would best accomplish NEPA's goals of minimizing adverse effects on the environment, and protecting natural and cultural resources. Much like NEPA, the state's CEQA guidelines require the lead agency to identify the *environmentally superior alternative*, or the alternative that would least affect the environment while accomplishing project objectives. If the No Project Alternative is identified as environmentally superior but would not meet project objectives, the lead agency must also identify the environmentally superior alternative that would implement the project (CEQA Guidelines Sec. 15126.6[a], [e]). In addition, the proposed project itself cannot be identified as the environmentally superior alternative, although the lead agency is expected to compare the environmental risks and benefits of the proposed approach with those of the environmentally superior alternative approach.

Methods and Outcome

Table S-9 above presents a summary comparison of the proposed action, the three action alternatives, and the No Action Alternative. This provides the basic context for identifying the environmentally preferable/environmentally superior alternative, but additional detail at a resource-specific level is needed. This was obtained by assessing each impact individually to identify the alternative that would offer the best outcome for that specific concern, as summarized in Table S-10.

As shown in Table S-10, the alternative offering the best outcome for the most impacts under each resource topic was selected as preferable for that resource. The environmentally preferable/environmentally superior alternative is expected to be the one identified as preferable for the most resource areas—that is, the one that offers the best outcome overall for the most resources. Alternative 1 was identified as preferable for land use and planning (because of the increased regionalization it would provide) and for biological resources (because of its emphasis on reduced take). It would also be preferable for agricultural resources and for recreation, which would be subject to increased constraints as compensation acreages increase under Alternative 2 and would suffer under the less coordinated planning approach offered by Alternative 3 and the No Action Alternative. On the other hand, Alternative 2 is clearly preferable for resources

Table S-8. Summary of Environmental Effects and Mitigation Strategies—Proposed Action

Resource	Impact	Significance Before Mitigation	Mitigation	Significance with Mitigation	Contribution to Cumulative Impacts
Land Use	Impact LUP1—Potential for O&M and minor construction activities to result in physical division of an established community or inconsistency with existing or planned land uses.	Less than significant.	None required.	N/A	No regional cumulative impact identified. Additive effects would be less than significant over the action area as a whole.
	Impact LUP2—Potential for compensation options to result in physical division of an established community.	Less than significant.	None required.	N/A	
	Impact LUP3—Potential incompatibility of preserves with existing (onsite) land uses.	Less than significant.	None required.	N/A	
	Impact LUP4—Potential incompatibility of preserves with adjacent land uses.	Less than significant.	None required.	N/A	
	Impact LUP5—Potential inconsistencies between preserve land acquisition and local land use plans and policies.	Less than significant.	None required.	N/A	
	Impact LUP6—Potential conflicts with existing HCPs or NCCPs.	Less than significant.	None required.	N/A	
Agricultural Resources	Impact AG1—Potential for the conversion of important farmland to nonagricultural uses due to O&M and minor construction activities.	Less than significant.	None required.	N/A	Conversion of agricultural land to nonagricultural uses represents a significant cumulative impact in the action area, but the maximum rate of agricultural conversion anticipated under the proposed action would not represent a cumulatively considerable contribution.
	Impact AG2—Potential for the conversion of important farmland due to implementation of compensation options.	Less than significant.	None required.	N/A	
	Impact AGR3—Potential to conflict with existing Williamson Act contracts.	Less than significant.	None required.	N/A	

Resource	Impact	Significance Before Mitigation	Mitigation	Significance with Mitigation	Contribution to Cumulative Impacts
Biological Resources	Impact BIO1—Potential disturbance of loss of natural vegetation.	Potentially significant.	Potential impacts would be addressed by the continuation of PG&E's existing biological resources program and new AMMs under the proposed HCP. No further mitigation is required.	Less than significant.	Like much of the rest of California, the action area is subject to significant cumulative impacts related to loss and degradation of habitat. Significant cumulative impacts also exist for individual plant and wildlife species that qualify for federal or state special status, including but not limited to the species covered in the proposed HCP. However, with the proposed HCP's protections and compensation in place, O&M and minor construction under the proposed action are not expected to make a cumulatively considerable contribution to regional loss of natural habitats, and the HCP is expected to result in a net long-term benefit with regard to cumulative regional habitat loss. It would also result in corollary benefits to common and special-status wildlife using the habitats preserved and protected. The HCP also provides species-specific measures that augment PG&E's existing biological resources programs to reduce and compensate for disturbance, injury, and mortality of 65 special-status plant and wildlife species. With PG&E's existing programs and the HCP's additional measures and compensation in place, O&M and minor construction under the proposed action are not expected to make a cumulatively considerable contribution to cumulative impacts on the HCP-covered species, and the proposed HCP is expected to result in a net long-term benefit for these species. O&M and minor construction have some potential to result in injury, mortality, and/or loss of habitat to special-status species other than those covered by the HCP. However, based on these species' distribution and the nature of the activities that would take place under the proposed action, PG&E's existing biological resources protection program, and corollary benefits to some species that use habitats protected under the HCP, the lead agencies have
	Impact BIO2—Potential disturbance or loss of vernal pool habitat.	Potentially significant.	Potential impacts would be addressed by new AMMs under the proposed HCP. No further mitigation is required.	Less than significant.	
	Impact BIO3—Potential disturbance or loss of covered special-status plant species and their habitat.	Potentially significant.	Potential impacts would be addressed by the continuation of PG&E's existing biological resources program and new AMMs under the proposed HCP. No further mitigation is required.	Less than significant.	
	Impact BIO4—Potential disturbance or loss of covered special-status wildlife species and their habitat.	Potentially significant.	Potential impacts would be addressed by the continuation of PG&E's existing biological resources program and new AMMs under the proposed HCP. No further mitigation is required.	Less than significant.	
	Impact BIO5—Potential loss of noncovered special-status plant species and their habitat.	Less than significant.	None required.	N/A	
	Impact BIO6—Potential effects on noncovered special-status wildlife species and their habitat.	Less than significant.	None required.	N/A	
	Impact BIO7—Potential effects on aquatic habitat as a result of inchannel work.	Potentially significant.	Potential impacts would be addressed by the continuation of PG&E's existing BMP program and new measures under the proposed MSAA. No further mitigation is required.	Less than significant.	

Resource	Impact	Significance Before Mitigation	Mitigation	Significance with Mitigation	Contribution to Cumulative Impacts
	Impact BIO8—Potential disturbance or loss of common wildlife species and their habitats.	Potentially significant.	Potential impacts would be addressed by new AMMs under the proposed HCP. No further mitigation is required.	Less than significant.	concluded that the proposed action would not make a cumulatively considerable contribution to impacts on these species.
	Impact BIO9—Potential to spread invasive nonnative plant species.	Potentially significant.	Potential impacts would be addressed by the continuation of PG&E's existing biological resources program and new AMMs under the proposed HCP. No further mitigation is required.	Less than significant.	
Aesthetics	Impact AES1—Potential for adverse effects on visual resources, visual character, or visual quality as a result of O&M activities.	Less than significant.	None required.	N/A	The overall visual character and quality of action area views does not constitute a regionwide cumulative impact. No significant additive cumulative effect is anticipated as a result of O&M. Because it is not possible to predict the exact siting or nature of minor construction projects at this time, analysis of their additive effect, if any, on regionwide visual character would be speculative.
	Impact AES2—Potential for adverse effects on visual resources associated scenic highways and other designated scenic vistas as a result of new minor construction.	No impact.	None required.	N/A	
	Impact AES3—Potential for medium- and long-term degradation of visual character of public viewshed as a result of vegetation removal and earthwork for new minor construction.	Less than significant.	None required.	N/A	
	Impact AES4—Potential for long-term degradation of region's visual resources through introduction of built elements.	Less than significant.	None required.	N/A	
	Impact AES5—Potential introduction of new substantial sources of light or glare.	Less than significant.	None required.	N/A	
	Impact AES6—Potential introduction of substantial new shading on adjacent parcels.	Less than significant.	None required.	N/A	

Resource	Impact	Significance Before Mitigation	Mitigation	Significance with Mitigation	Contribution to Cumulative Impacts
	Impact AES7—Aesthetic enhancement as a result of habitat compensation.	Beneficial.	None required.	N/A	
Geology and Soils	Impact GEO1—Potential for damage to new or upgraded facilities as a result of surface fault rupture.	Less than significant.	None required.	N/A	Factors related to geologic hazards are not typically considered to create a cumulative impact except in the case of multiple similar projects within a restricted geologic area where hazards cannot be mitigated with confidence. This is not the case for the proposed action. However, accelerating development in the San Joaquin Valley over recent decades has contributed to progressive unavailability and loss of topsoil resources, representing a significant cumulative impact in parts of the action area. O&M activities would take place on already-disturbed substrate within and adjacent to existing ROWs, and thus are not expected to result in significant additional loss of topsoil or to make a cumulatively considerable contribution to the regionwide impact. Minor construction could occur in undisturbed areas, potentially resulting in loss of topsoil resources, but the total area affected over the 30-year permit term would be small enough that the loss is not expected to represent a cumulatively considerable contribution to regional loss of topsoil resources.
	Impact GEO2—Potential for damage to new or upgraded facilities as a result of seismic groundshaking.	Less than significant.	None required.	N/A	
	Impact GEO3—Potential for damage to new or upgraded facilities as a result of seismically induced liquefaction or other seismic ground failure.	Less than significant.	None required.	N/A	
	Impact GEO4—Potential for damage to new or upgraded facilities as a result of slope failure; potential for construction activities to increase slope failure hazard.	Less than significant.	None required.	N/A	
	ImpactGEO5—Risks to new or upgraded facilities as a result of construction on expansive soils.	Less than significant.	None required.	N/A	
	Impact GEO6—Potential for proposed action to result in accelerated soil erosion.	Less than significant.	None required.	N/A	
	Impact GEO7—Potential loss of topsoil resources.	Less than significant.	None required.	N/A	
Water Quality	Impact WR1—Potential to divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake.	Potentially significant.	Potential impacts would be addressed by the continuation of PG&E's existing BMP program and new measures under the proposed MSAA. No further mitigation is required.	Less than significant.	Cumulative impacts on surface and groundwater quality exist in parts of the action area. However, the effects of potentially increased sediment loading on impaired systems as a result of onland work are not expected to be cumulatively considerable in either the short or

Resource	Impact	Significance Before Mitigation	Mitigation	Significance with Mitigation	Contribution to Cumulative Impacts
	Impact WR2—Potential for alteration of existing drainage patterns, increasing flood risk and/or erosion and siltation potential.	Potentially significant.	Potential impacts would be addressed by the continuation of PG&E's existing BMP program and measures required to comply with relevant federal and state regulations. No further mitigation is required.	Less than significant.	long term, nor is onland work expected to create a new, significant additive cumulative effect on systems not already identified as impaired. Inchannel work is similarly unlikely to make a cumulatively considerable contribution to any existing water quality impact or to create a significant additive impact in systems not identified as impaired. The same is applies to potential impacts as a result of hazardous materials spills or releases.
	Impact WR3—Potential for increase flood risks as a result of facilities installation.	Less than significant.	None required.	N/A	
	Impact WR4—Potential for increased stormwater runoff, and corollary effects	Less than significant.	None required.	N/A	
	Impact WR5—Potential use of streambed materials.	Potentially significant.	Potential impacts would be addressed by the continuation of PG&E's existing BMP program and new measures under the proposed MSAA. No further mitigation is required.	Less than significant.	
	Impact WR6—Potential for reduction in groundwater recharge	Less than significant.	None required.	N/A	
	Impact WR7—Potential temporary degradation of surface water quality as a result of ground disturbance during O&M and construction activities	Potentially significant.	Potential impacts would be addressed by the continuation of PG&E's existing BMP program, including compliance with federal and state regulations, and new AMMs under the proposed HCP. No further mitigation is required.	Less than significant.	
	Impact WR8—Potential temporary degradation of surface water quality as a result of inchannel work.	Potentially significant.	Potential impacts would be addressed by the continuation of PG&E's existing BMP program, including compliance with federal and state regulations, and new AMMs under the proposed HCP and MSAA. No further mitigation is required.	Less than significant.	

Resource	Impact	Significance Before Mitigation	Mitigation	Significance with Mitigation	Contribution to Cumulative Impacts
	Impact WR9—Potential for degradation of surface and groundwater quality as a result of hazardous materials spills or releases	Potentially significant.	Potential impacts would be addressed by the continuation of PG&E's existing BMP program, including compliance with federal and state regulations, and new AMMs under the proposed HCP and MSAA. No further mitigation is required.	Less than significant.	
Cultural Resources	Impact CR1—Potential disturbance or destruction of cultural resources as a result of O&M activities.	Less than significant.	None required.	N/A	Throughout California, including the action area, a significant cumulative impact exists with regard to loss of Native American cultural resources and heritage. With current regulations and PG&E's cultural resources protection program in place, activities under the proposed action are not expected to result in a cumulatively considerable contribution to regional loss of cultural resources, nor are they considered likely to create an independent, additive cumulative effect in excess of that already existing.
	Impact CR2—Potential disturbance or destruction of cultural resources as a result of minor construction activities.	Less than significant.	None required.	N/A	
	Impact CR3—Potential impacts on cultural resources as a result of habitat enhancement, restoration, or creation.	Less than significant.	None required.	N/A	
Paleontological Resources	Impact PAL1—Potential for damage to paleontological resources.	Significant.	PAL1.1—Include site-specific evaluation of paleontological sensitivity for projects requiring site-specific geotechnical investigation. PAL1.2—Stop work if substantial fossil remains are encountered during construction. PAL1.3—Implement follow-up assessment and remediation in the event paleontological resources are discovered during emergency repairs.	Less than significant.	No regionwide cumulative impact has been identified. With Mitigation Measures PAL1.1, PAL1.2, and PAL1.3 in place, activities under the proposed action are not expected to result in a significant additive cumulative effect on paleontological resources.

Resource	Impact	Significance Before Mitigation	Mitigation	Significance with Mitigation	Contribution to Cumulative Impacts
Transportation and Circulation	Impact TR1—Potential to result in temporary construction-related traffic increases and traffic safety hazards (O&M, minor construction, and preserve enhancements)	Less than significant.	None required.	N/A	Cumulative traffic concerns exist in parts of the action area, particularly in urban areas and along heavily traveled corridors such as parts of I-5. Other parts of the action area, including rural areas and recently developed areas where roadway infrastructure is adequate for current and projected demand, are not subject to cumulative traffic impacts. Because traffic conditions are so diverse, a regional (action area–wide) cumulative impact is not considered to exist. Neither O&M nor minor construction is expected to result in a significant additive cumulative effect on vehicular traffic or other transportation.
	Impact TR2—Potential long-term traffic increases and traffic safety hazards due to O&M activities and staffing at new facilities	Less than significant.	None required.	N/A	
	Impact TR3—Potential long-term traffic increases and traffic safety hazards due to activities at preserves	Less than significant.	None required.	N/A	
	Impact TR4—Potential to result in inadequate parking capacity	Less than significant.	None required.	N/A	
	Impact TR5—Potential conflicts with transportation plans, programs, and planned projects.	Less than significant.	None required.	N/A	
Noise and Vibration	Impact N1—Potential for temporary or permanent exposure of noise-sensitive land uses to elevated noise levels	Less than significant.	None required.	N/A	Land uses in the action area range from urban to agricultural and rural. Because of the diversity of noise environments in the action area, a regional cumulative impact is not considered to exist. Neither O&M nor minor construction is expected to result in a significant additive cumulative effect on noise conditions.
	Impact N2— Potential for temporary or permanent exposure of noise-sensitive land uses to elevated vibration levels	Less than significant.	None required.	N/A	
Air Quality	Impact AIR1—Potential to generate increased pollutant emissions during O&M activities	Less than significant.	None required.	N/A	Most of the action area is in non-attainment for federal and/or state ozone and PM10 standards; significant cumulative impacts are considered to exist for ozone levels in all parts of the action area, and for PM10 (inhalable particulate matter) levels in the San Joaquin Air Basin and Yosemite National Park. Because individual
	Impact AIR2—Potential to exceed federal General Conformity thresholds	No impact.	None required.	N/A	

Resource	Impact	Significance Before Mitigation	Mitigation	Significance with Mitigation	Contribution to Cumulative Impacts
	Impact AIR3—Air quality enhancement as a result of habitat compensation	Beneficial.	None required.	N/A	O&M activities would continue to be relatively small-scale and short in duration, and would use progressively "cleaner" equipment over the permit term, emissions of ozone precursor gases are considered to fall short of the cumulatively considerable threshold. The transition to "cleaner" gasoline- and diesel-powered equipment discussed above would reduce the contribution of tailpipe emissions to PM10 levels over time. PG&E has also committed to implementing the SJVUAPCD's "Regulation VIII" control measures to reduce dust generation. Thus, the proposed action's contribution to regional particulate matter impacts is not considered to exceed the cumulatively considerable threshold, consistent with SJVUAPCD guidance. Because vehicle and equipment use would be intermittent and short-term, additive effects of carbon monoxide released via vehicle and small equipment tailpipe emissions over the 30-year permit term are not expected to create a new significant cumulative effect.
Public Health and Environmental Hazards	Impact PH1—Potential to create a hazard to the public or the environment through routine transport, use, or disposal of hazardous materials other than herbicides; potential for inadvertent spills or releases of hazardous materials other than herbicides	Less than significant.	None required.	N/A	The action area has supported a broad range of land uses that employ hazardous materials. Some areas with a history of specific land uses (e.g., industry and manufacturing, defense-related activities, rail and highway uses) are considered to be subject to localized cumulative impacts, while other parts of the action area are comparatively unimpacted. Because it is difficult to generalize across the entire action area, no action area–wide cumulative impact relative to hazardous materials is considered to exist. There is some potential for additive effects as a result of repeated activities along PG&E's ROWs, but in light of the company's hazardous materials program and the additional protection
	Impact PH2—Potential to create a hazard to the public or the environment through routine transport, use, or disposal of herbicides; potential for inadvertent spills or releases of herbicides	Less than significant.	None required.	N/A	

Resource	Impact	Significance Before Mitigation	Mitigation	Significance with Mitigation	Contribution to Cumulative Impacts
	Impact PH3—Potential for human or environmental exposure to hazardous materials as a result of ground disturbance on sites with known hazardous materials contamination	Less than significant.	None required.	N/A	provided by regulatory clean-up and remediation requirements, the additive cumulative effect, if any, is not expected to be significant over the long term. -
	Impact PH4—Potential to interfere with or impede the implementation of adopted emergency response plans; potential to interfere with emergency vehicle access or increase emergency services' response times	Less than significant.	None required.	N/A	
	Impact HC5—Potential handling of hazardous materials within 0.25 mile of an existing or planned school	Less than significant.	None required.	N/A	
Recreation	Impact REC1—Potential to result in, construct, or expand recreational facilities that might have an adverse physical effect on the environment.	Less than significant.	None required.	N/A	No regional cumulative impact on recreation has been identified. No significant additive cumulative effect on recreation is anticipated as result of O&M, construction of new facilities, or acquisition of new preserve lands.
	Impact REC2—Potential to increase the use of recreational facilities, accelerating or causing physical deterioration.	Less than significant.	None required.	N/A	
	Impact REC3—Potential for reduced recreational opportunities due to O&M and short-term construction activities	Less than significant.	None required.	N/A	
	Impact REC4—Potential for reduced recreational opportunities due to installation of new, improved, or expanded aboveground facilities or structures.	Less than significant.	None required.	N/A	

Resource	Impact	Significance Before Mitigation	Mitigation	Significance with Mitigation	Contribution to Cumulative Impacts
	Impact REC5—Potential for reduced recreational opportunities due to implementation of compensation options	Less than significant.	None required.	N/A	
	Impact REC6—Potential to provide new or enhanced recreational opportunities due to establishment of preserves or other compensation lands	Beneficial.	None required.	N/A	
Socioeconomics	Socioeconomic effects are expected to be minimal.	N/A (only NEPA analysis is required).	None required.	N/A	No regionwide cumulative impact has been identified. Analysis of the proposed action's incremental socioeconomic effects considered effects over the entire action area throughout the 30-year permit term; no further analysis of additive effects is warranted.
Environmental Justice	Effects related to environmental justice are expected to be minimal.	N/A (only NEPA analysis is required).	None required.	N/A	No regionwide cumulative impact has been identified. Analysis of the proposed action's incremental effects related to environmental justice considered effects over the entire action area throughout the 30-year permit term; no further analysis of additive effects is warranted.

Table S-9. Comparison of Anticipated Environmental Effects—Alternatives 1 through 4

Resource	Alternative 1—HCP with Reduced Take	Alternative 2—HCP with Enhanced Compensation	Alternative 3—HCP with Reduced Number of Covered Species	Alternative 4—No Action
Land Use	Alternative 1 would enable the same program of O&M and minor construction activities as that described for the proposed action with minor differences specific to HCP commitments for the protection of biological resources. Specifically, under Alternative 1, compensation ratios for loss or disturbance of habitat would be the same as those described for the proposed action, but AMMs would be implemented more comprehensively. Although the level of take would be reduced because of the increased stringency in implementing the HCP's AMMs, compensation acreages are expected to be similar under both alternatives because compensation would be calculated based on acreage of disturbance, not level of take. Consequently, under Alternative 1, impacts related to land use would be similar to those described for the proposed action.	Like Alternative 1, Alternative 2 would enable the same program of O&M and minor construction activities as that described for the proposed action, with minor differences specific to commitments for the protection of biological resources. Differences between Alternative 2 and the proposed action center on compensation ratios for habitat disturbed or lost (increased under Alternative 2 by comparison with the proposed action, as described in Chapter 2). Alternative 2's emphasis on compensation would entail a greater compensation acreage at a given level of disturbance, and could result in the establishment of a greater number of preserves or preserves that encompass larger geographic areas by comparison with the proposed action. Nonetheless, consultation with appropriate local jurisdiction land managers would minimize or avoid substantial conflicts with existing and planned land uses and with applicable land use policies and plans. Therefore, impacts related to land use would be similar under Alternative 2 to those described for the proposed action, despite the greater geographic area potentially affected under Alternative 2.	Alternative 3 would enable the same program of O&M and minor construction activities described for the proposed action, and would enact the same additional environmental commitments for other resource areas identified in this EIS/EIR. The key difference between Alternative 3 and the proposed action relates to the number of species covered under Alternative 3 (reduced by comparison with the proposed action, as described in Chapter 2). Depending on their status at the time, other species might be subject to state, and possibly also federal, requirements for impact assessment and compensation, which would need to be addressed on a case-by-case basis. Reducing the number of HCP-covered species could result in the establishment of a smaller number of preserves or preserves that encompass smaller geographic areas by comparison with the proposed action. At the same time, additional, case-by-case assessment of compensation needs might be required for any individual activities identified as having the potential to affect noncovered special-status species. However, criteria for identifying suitable compensation lands would remain the same and selection of appropriate compensation lands would be subject to essentially the same agency approval process. Further, PG&E's commitment to consult with local jurisdictions regarding land use planning issues would carry forward. Thus, although it might be more difficult to achieve efficient land use planning and ensure consistency of compensation uses with other existing and planned uses, the net effect on land use under Alternative 3 would be similar to that identified for the proposed action. .	Under the No Action Alternative, PG&E would continue its existing program of O&M activities and current environmental programs and practices, including BMPs, unchanged. No HCP would be implemented, and no other new environmental commitments would be put in place. Individual activities with the potential to affect threatened and/or endangered species would be assessed on a case-by-case basis through consultation with USFWS and DFG for level of effect and compensation needs. Because compensation requirements would be assessed on a case-by-case basis, smaller parcels of land would probably be identified for enhancement at any given time, but case-by-case assessment could also result in identification of a larger number of parcels for compensation use. This is similar to but more extreme than the scenario described above for Alternative 3, where most compensation would likely occur under the auspices of an HCP process. Criteria for identifying suitable compensation lands would likely be similar to those described for the proposed action, and selection of appropriate compensation lands would be subject to the same agency approval process. Moreover, PG&E would still consult with local jurisdiction land managers in an attempt to minimize or avoid land use conflicts. Thus, outcomes for land use would probably be broadly similar under the No Action Alternative to those described for the proposed action. However, the area affected could vary, and with no HCP (and hence, no centralized conservation planning process) in place, it would probably be substantially more difficult to achieve efficient land use planning and ensure consistency of compensation uses with other existing and planned uses.
Agricultural Resources	Alternative 1 would enable the same program of O&M and minor construction activities as that described for the proposed action, with minor differences in the commitments for protection of biological resources. Alternative 1 would enact the same environmental commitments for other resource areas identified in this EIS/EIR for the proposed action, and compensation ratios for loss or disturbance of habitat would also be the same. The key difference between the proposed action and Alternative 1 is that Alternative 1 would implement avoidance and minimization measures (AMMs) at a lower level of effect than the proposed action, with the intent of reducing take. Although the level of take would be reduced because of the increased stringency associated with implementation of the AMMs, compensation needs are expected to be similar under both alternatives, because compensation acreages would be based on acreage affected rather than level of take. Consequently, under Alternative 1, impacts on agricultural resources would be similar to those described for the proposed action.	Alternative 2 would enable the same program of O&M and minor construction activities and the same environmental commitments for other resource areas identified in this EIS/EIR for the proposed action. Differences between Alternative 2 and the proposed action center on compensation ratios for habitat disturbed or lost (greater under Alternative 2 than under the proposed action). Under Alternative 2, assuming the same level of habitat disturbance, overall compensation requirements would be higher than under the proposed action, although criteria for identifying suitable compensation lands would remain the same and selection of appropriate compensation lands would be subject to the same agency approval. As the demand for compensation lands increases, availability of lands that support the appropriate habitat types can be expected to decrease, both within and outside of PG&E ROWs. However, where appropriate and available compensation lands cannot be identified for purchase or easement, other compensation options would be still available (i.e., purchase of mitigation credits, donations, and enhancement), and might be more extensively used; reliance on compensation options other than acquisition by purchase or easement might offset some of the difference in compensation needs. Nonetheless, the enhanced compensation requirements under Alternative 2 would result in greater overall compensation requirements and, as a result, could lead to the establishment of a greater number and/or larger acreage of preserves. Consequently, impacts on agricultural resources would likely be slightly greater under Alternative 2 than those described for the proposed action, when viewed from a NEPA perspective. Impacts under CEQA would be the same; that is, less than significant. This is because the physical attributes of agricultural/grazing lands that may be acquired for habitat compensation use under the proposed action would not be lost or otherwise altered by the proposed action, although they would be	Alternative 3 would enable the same program of O&M and minor construction activities as that described for the proposed action, and would enact the same additional environmental commitments for other resource areas identified in this EIS/EIR. The key difference between Alternative 3 and the proposed action relates to the number of species covered under Alternative 3 (reduced by comparison with the proposed action, as described in Chapter 2). Depending on their status at the time, other species might be subject to state, and possibly also federal, requirements for impact assessment and compensation, which would need to be addressed on a case-by-case basis. Under Alternative 3, reducing the number of covered species could result in the establishment of a smaller number of preserves or preserves that encompass smaller geographic areas by comparison with the proposed action. At the same time, additional, case-by-case assessment of compensation needs might be required for any individual activities identified as having the potential to affect noncovered special-status species. It is difficult to determine the precise effect that this approach would have on agricultural lands since detailed compensation needs cannot be identified at this time. However, because Alternative 3 could require the assessment of at least some compensation needs on a case-by-case basis, it could result in the identification of smaller parcels of land (including ROW areas) for enhancement use, compared to the proposed action. Also, while Alternative 3 could result in smaller contiguous areas for acquisition and/or enhancement use, more numerous acquisitions could also occur under Alternative 3. Depending on availability of appropriate habitat, multiple land acquisitions and/or enhancement areas could potentially be scattered throughout the action area. As the demand for compensation lands increases, availability of lands that support the appropriate habitat types can be expected to decrease, including areas within PG&E ROWs. Where appropriate and	Under the No Action Alternative, PG&E would continue its existing program of O&M activities unchanged. No HCP would be implemented, and no other new or additional environmental commitments would be put in place. Individual actions affecting suitable habitat for listed special-status species would be assessed through case-by-case consultation with USFWS and DFG for level of effect and compensation needs. Because the compensation requirements for habitat disturbance would be assessed on a case-by-case basis, smaller parcels of land would likely be identified for acquisition or enhancement at any given time, but case-by-case assessment could also result in a need for more numerous parcels, potentially distributed over a wider area. This is similar to but more extreme than the case described above for Alternative 3, where most compensation would likely occur under the auspices of an HCP process. The availability of desirable compensation lands is expected to decrease over time, as lands are used for compensation or other purposes. However, as described for the action alternatives, where appropriate and available compensation lands cannot be identified for purchase or easement, other compensation options would likely still be available (e.g., purchase of mitigation credits, donations, and enhancement). Because of the need for activity-by-activity consultation, the No Action Alternative would have the potential to result in some permanent loss of agricultural resources in the action area, and the overall nature of effects would be similar to that described above for the proposed action. However, the degree of impact is uncertain. Adverse effects on agricultural resources could be slightly reduced under the No Action Alternative compared to the proposed action since suitable compensation lands might be more difficult to acquire

Resource	Alternative 1—HCP with Reduced Take	Alternative 2—HCP with Enhanced Compensation	Alternative 3—HCP with Reduced Number of Covered Species	Alternative 4—No Action
		managed to benefit biological resources as opposed to focused solely on the production of agricultural commodities. In this sense, acquisition and management of agricultural/grazing lands to benefit biological resources is not expected to result in a significant impact on the environment associated with the loss of agricultural land.	available compensation lands cannot be identified for purchase or easement, other compensation options would still be available (e.g., purchase of mitigation credits, donations, and enhancement); reliance on compensation options other than acquisition by purchase or easement could offset some of the difference in compensation needs. However, criteria for identifying suitable compensation lands would remain the same, and selection of appropriate compensation lands would be subject to USFWS and DFG approval. Alternative 3 would thus have some potential to permanently affect agricultural lands (and particularly grazing lands) in the action area, and impacts could be spread over a wider area because more activity-by-activity compensation could be required. Impacts related to agricultural resources would probably be essentially the same or slightly greater under Alternative 3 compared to those described for the proposed action, when viewed from a NEPA perspective. As described for Alternative 2, impacts under CEQA would be the same; that is, less than significant. This is because the physical attributes of agricultural/grazing lands that may be acquired for habitat compensation use under the proposed action would not be lost or otherwise altered by the proposed action, although they would be managed to benefit biological resources as opposed to focused solely on the production of agricultural commodities. In this sense, acquisition and management of agricultural/grazing lands to benefit biological resources is not expected to result in a significant impact on the environment associated with the loss of agricultural land.	on a case-by-case basis, and smaller parcels might be less likely to meet the biological objectives of compensation; accordingly, payment-type compensation options might be used to a greater degree. It is difficult to assess the precise effect that this approach would have on agriculture because locations and other details about specific habitat enhancement sites are unknown at this time, as are the actual compensation acreages that would be required. Alternatively, if payment-type compensation options were not emphasized, the case-by-case approach to compensation determination under the No Action Alternative would result in a greater number of acquisitions/enhancements, some or all of which could be located on agricultural (largely grazing) lands. Consequently, impacts on agricultural resources could be slightly greater under the No Action Alternative than those described for the proposed action when viewed from a NEPA perspective. As described above for the action alternatives, impacts under CEQA would be the same in this case; that is, less than significant. This is because the physical attributes of agricultural/grazing lands that may be acquired for habitat compensation use under the proposed action would not be lost or otherwise altered by the proposed action, although they would be managed to benefit biological resources as opposed to focused solely on the production of agricultural commodities. In this sense, acquisition and management of agricultural/grazing lands to benefit biological resources is not expected to result in a significant impact on the environment associated with the loss of agricultural land.
Biological Resources	Alternative 1 would enable the same program of O&M and minor construction activities analyzed for the proposed action; differences between Alternative 1 and the proposed action center on mechanisms for avoiding take. Specifically, Alternative 1 focuses on increased avoidance of take, and would require much more comprehensive and stringent implementation of the HCP's AMM program, which would benefit both covered and noncovered special-status species, and would likely also provide corollary benefits for common species. Impacts on special-status species (covered and noncovered), identified as less than significant for the proposed action, are expected to be further reduced under Alternative 1. Impacts on common species, also expected to be less than significant under the proposed action, would likely also be somewhat reduced under Alternative 1.	Like Alternative 1, Alternative 2 would enable the same program of O&M and minor construction activities analyzed for the proposed action. Alternative 2 would also implement the same AMMs; however, because Alternative 2 stresses increased compensation for unavoidable habitat losses, habitat compensation requirements would be substantially increased under Alternative 2. As a result, impacts on biological resources would be essentially the same under Alternative 2 as those described for the proposed action, but temporary and permanent habitat losses would be compensated at a higher ratio, so a greater acreage of compensation lands (with corollary benefits for covered, noncovered, and common species) would accrue under Alternative 2.	Alternative 3 would enable the same program of O&M and minor construction activities analyzed for the proposed action and the other action alternatives. The key difference between Alternative 3 and the proposed action is that a smaller number of species would be covered under the Alternative 3 HCP; AMMs and habitat compensation would otherwise be essentially the same as those described for the proposed action. Because the Alternative 3 HCP would protect fewer special-status species, it would provide less corollary protection for noncovered special-status species and common species, and would likely require less habitat compensation over the long term. Impacts on biological resources could thus be somewhat greater under Alternative 3 than under the proposed action.	Under the No Action Alternative, PG&E would continue O&M and minor construction activities for its San Joaquin Valley natural gas and electricity facilities without implementing a program-wide HCP. Instead, potential take of threatened and endangered species would continue to be addressed on a case-by-case basis, pursuant to the requirements of ESA Section 7 and Section 2081 of the California Fish and Game Code. Through the consultation process, PG&E would likely address impacts on many or all of the species included in the proposed HCP and discussed in this EIS/EIR. Measures implemented to avoid, minimize, and mitigate impacts on special-status species, would likely also help to reduce or avoid impacts on common species. The general types of impacts on natural vegetation, special-status species, and common species expected under the No Action Alternative would be very similar to those identified above for the proposed action. The key differences are (1) no new AMMs would be implemented to buffer potential impacts, so impacts are more likely to be significant; and (2) potential take would be dealt with on a case-by-case basis rather than through a coordinated conservation program. Consequently, conservation efforts under the No Action Alternative would be less integrated; in particular, the purchase of conservation lands would probably be more fragmented. While case-by-case mitigation might be effective at targeting and preserving localized high-value habitat, the creation of a large number of smaller mitigation sites could result in less effective species conservation across the action area as a whole. Conservation lands would be less likely to offer preferred conditions such as larger contiguous areas of habitat or connectivity with other open space or conservation areas. This would be of particular concern for species such as the San Joaquin kit fox that require large areas of habitat or corridors allowing them to travel between areas of suitable habitat. The absence of a comprehensive monitoring and adaptive management program would also reduce opportunities to ensure the success of mitigation sites. In summary, because the No Action Alternative would approach conservation on a case-by-case basis, it would not offer the advantages of integrated regional conservation planning provided by the action alternatives. Outcomes for all categories of habitats and

Resource	Alternative 1—HCP with Reduced Take	Alternative 2—HCP with Enhanced Compensation	Alternative 3—HCP with Reduced Number of Covered Species	Alternative 4—No Action
				wildlife are more likely to be adverse/significant under the No Action Alternative.
Aesthetics	Alternative 1 would enable the same program of O&M and minor construction activities as the proposed action. Consequently, Impacts AES1 through AES5 would be the same under Alternative 1 as those described above for the proposed action. Differences between Alternative 1 and the proposed action center on the strategy for mitigating the biological effects of PG&E's O&M and minor construction activities; Alternative 1 stresses reducing take. However, although the level of take would be reduced because of the increased stringency associated with implementation of the AMMs, compensation needs are expected to be similar under both alternatives because compensation acreages would be calculated based on acreage affected, not level of take. Consequently, under Alternative 1, impacts related to aesthetic resources would be similar to those described for the proposed action.	Alternative 2 would enable the same program of O&M and minor construction activities as the proposed action. Consequently, as with Alternative 1, Impacts AES1 through AES6 would be the same under Alternative 2 as those described above for the proposed action. Differences between Alternative 2 and the proposed action center on the strategy for mitigating the biological effects of PG&E's O&M and minor construction activities; Alternative 2 would entail compensation at higher ratios than the proposed action, and thus is expected to require substantially larger compensation acreages. Aesthetic benefits related to the preservation of natural open space would thus be maximized under Alternative 2.	Alternative 3 would enable the same program of O&M and minor construction activities as the proposed action; Impacts AES1 through AES6 would thus be the same under Alternative 3 as those described above for the proposed action. The key difference between Alternative 3 and the proposed action is that the Alternative 3 HCP would cover a smaller number of species, so the compensation acreages required under the Alternative 3 HCP are likely to be somewhat less. However, PG&E could still be required to consult separately with the U.S. Fish and Wildlife Service regarding potential take of other special-status species not covered by the Alternative 3 HCP, and any such consultation could result in the identification of additional habitat compensation needs; as identified in Chapter 3 (*Land Use and Planning*), the net result of Alternative 3 could be the preservation of a somewhat larger number of smaller and more areally distributed parcels compared to the larger, more consolidated preserve acreages anticipated under the proposed action. Smaller, more widely distributed preserves could ultimately result in benefits to more viewers. On the other hand, smaller, more areally distributed preserves could be less aesthetically effective than larger parcels. In summary, it is difficult to predict benefits under Alternative 3, but it is likely that they would be slightly less than those offered by the proposed action.	Under the No Action Alternative, PG&E would continue its existing program of O&M activities unchanged. Impacts AES1 through AES6 would be essentially the same under the No Action Alternative as those described above for the proposed action. No HCP would be implemented under the No Action Alternative, but PG&E would nonetheless be required to obtain permits for any incidental take of special-status species on a case-by-case basis. As described in Chapter 1 (*Introduction*), the permitting process would require conservation planning and consultation with USFWS, with the expectation that habitat losses would be compensated at ratios similar to those required under the proposed action. There would thus be some potential for aesthetic benefits related to the preservation of natural open space under the No Action Alternative. However, because conservation planning would be less centralized, and habitat preservation would occur in a less systematic way, smaller acreages would probably be preserved at any one time. The scenario for the No Action Alternative would be similar to that for Alternative 3, but is likely to result in even less centralized compensation planning. As described for Alternative 3, if compensation lands were widely distributed, they could ultimately benefit more viewers than would benefit from larger, more consolidated preserves. On the other hand, smaller, more areally distributed preserves could be less aesthetically effective than larger ones. In summary, aesthetic benefits under the No Action Alternative are difficult to predict, but are likely to be less marked than those offered by any of the action alternatives.
Geology and Soils	Alternative 1 would enable the same program of O&M and minor construction activities as that described for the proposed action, with minor differences specific to commitments for the protection of biological resources. The same program of BMPs, and the same regulatory protection including codes and standards, would continue to apply. Consequently, impacts related to geology and soils would be essentially the same under Alternative 1 as those described for the proposed action.	Alternative 2 would enable the same program of O&M and minor construction activities as that described for the proposed action. Differences between Alternative 2 and the proposed action would center on compensation ratios for habitat disturbed or lost (increased under Alternative 2 by comparison with the proposed action). As with Alternative 1, the same program of BMPs and the same regulatory protection, including codes and standards, would continue to apply. Thus, impacts related to geology and soils would be essentially the same under Alternative 2 as those described for the proposed action.	Alternative 3 would enable the same program of O&M and minor construction activities as that described for the proposed action. The key difference between Alternative 3 and the proposed action would relate to the number of species covered under the Alternative 3 (reduced by comparison with the proposed HCP, as described in Chapter 2). As described for the other action alternatives, the same program of BMPs and the same regulatory protection, including codes and standards, would continue to apply. Impacts related to geology and soils would be essentially the same under Alternative 3 as those described for the proposed action.	Under the No Action Alternative, PG&E would continue its existing program of O&M and minor construction activities unchanged. No HCP would be implemented, and no other new environmental commitments would be put in place. However, as identified for the three action alternatives, the same program of BMPs and the same regulatory protection, including codes and standards, would continue to apply under the No Action Alternative. Impacts related to geology and soils would thus be essentially the same under Alternative 4 as those described for the proposed action.
Water Resources	Alternative 1 would enable the same program of O&M and minor construction activities as that described for the proposed action, with minor differences specific to commitments for the protection of biological resources. Alternative 1 would incorporate the same environmental commitments for water resources protection identified in this EIS/EIR for the proposed action. Consequently, any adverse effects on water resources would be essentially the same under Alternative 1 as those described for the proposed action.	Alternative 2 would enable the same program of O&M and minor construction activities as that described for the proposed action. Differences between Alternative 2 and the proposed action would center on compensation ratios for habitat disturbed or lost (increased under Alternative 2 by comparison with the proposed action). Alternative 2 would incorporate the same environmental commitments for water resources protection identified in this EIS/EIR for the proposed action. As with Alternative 1, any adverse effects on water resources would be essentially the same under Alternative 2 as those described for the proposed action. Alternative 2 could offer a slight benefit for water resources by comparison with the proposed action and action alternatives, because its enhanced compensation ratios would maximize the preservation of natural drainage patterns and permeable natural surfaces, and preserve the greatest area from recontouring, cultivation, development and other types of ground disturbance.	Alternative 3 would enable the same program of O&M and minor construction activities as that described for the proposed action. The key difference between Alternative 3 and the proposed action would relate to the number of species covered under the Alternative 3 HCP (reduced by comparison with the proposed HCP, as described in Chapter 2), which would likely reduce the total compensation acreage preserved. Alternative 3 would incorporate the same environmental commitments for water resources protection identified in this EIS/EIR for the proposed action. Any adverse effects on water resources would be essentially the same under Alternative 3 as those described for the proposed action. Potential benefits related to preservation of compensation lands would be less than those afforded under Alternative 2, and probably also less than those under the proposed action.	Under the No Action Alternative, PG&E would continue its existing program of O&M activities unchanged. No HCP would be implemented, and no other new or environmental commitments in addition to those already in place would be put implemented. However, PG&E would continue to follow the same standard methods and techniques for carrying out O&M activities, and would continue to implement the company's existing environmental programs, practices, and BMPs, and the same regulatory protection would apply. Therefore, impacts on water resources would be very similar under Alternative 4 to those described for the proposed action. Slight differences could result from variations in compensation requirements, but would be speculative to predict at this time.
Cultural Resources	Alternative 1 would enable the same program of O&M and minor construction activities as that described for the proposed action, with minor differences specific to commitments for the protection of biological resources. PG&E's current cultural resources program would continue in force under Alternative 1. Consequently, impacts on cultural resources would be essentially the same under Alternative 1 as those described for the proposed action.	Alternative 2 would enable the same program of O&M and minor construction activities as that described for the proposed action, and PG&E's current cultural resources program would continue in force under Alternative 2. Differences between Alternative 2 and the proposed action would center on compensation ratios for habitat disturbed or lost (increased under Alternative 2 by comparison with the proposed action). As with Alternative 1, impacts on cultural resources would be similar under Alternative 2 to those described for	Alternative 3 would enable the same program of O&M and minor construction activities as that described for the proposed action, and PG&E's current cultural resources program would also continue in force under Alternative 3. The key difference between Alternative 3 and the proposed action would relate to the number of species covered under the Alternative 3 (reduced by comparison with the proposed HCP, as described in Chapter 2). Impacts on cultural resources would be similar under Alternative 3 to those described for	Under the No Action Alternative, PG&E would continue its existing program of O&M and minor construction activities unchanged, but no HCP would be implemented, and any habitat compensation would occur on a case-by-case, piecemeal basis. The company's existing cultural resources program—including pre-activity database searches for larger activities, and BMPs consistent with relevant federal and state regulations for all activities—would continue in force, although compliance would be performed on a case-by-case basis as projects

Resource	Alternative 1—HCP with Reduced Take	Alternative 2—HCP with Enhanced Compensation	Alternative 3—HCP with Reduced Number of Covered Species	Alternative 4—No Action
		the proposed action, but could be somewhat greater because of the enhanced compensation requirements. However, because PG&E's existing cultural resources program would continue in force under Alternative 2—including pre-activity database searches for larger activities, and BMPs consistent with relevant federal and state regulations for all activities—impacts are nonetheless expected to be less than significant.	the proposed action, although they could be somewhat reduced because the reduced number of covered species could reduce compensation acreage somewhat. Because the same protective measures would apply—including pre-activity database searches for larger activities, and BMPs consistent with relevant federal and state regulations for all activities—impacts are expected to be less than significant. .	arise. Consequently, O&M and minor construction impacts on cultural resources under the No Action Alternative would be very similar to those described for the proposed action. Impacts related to ground disturbance for habitat enhancement, restoration, or creation are speculative to predict because the nature and location of compensation parcels remains speculative at this time.
Paleontological Resources	Alternative 1 would enable the same program of O&M and minor construction activities as that described for the proposed action, with minor differences specific to commitments for the protection of biological resources. Consequently, impacts on paleontological resources would be essentially the same under Alternative 1 as those described for the proposed action, and the same mitigation strategy would apply.	Alternative 2 would enable the same program of O&M and minor construction activities as that described for the proposed action. Differences between Alternative 2 and the proposed action would center on compensation ratios for habitat disturbed or lost (increased under Alternative 2 by comparison with the proposed action). As with Alternative 1, impacts on paleontological resources would be very similar under Alternative 2 to those described for the proposed action, and the same mitigation strategy would apply.	Alternative 3 would enable the same program of O&M and minor construction activities as that described for the proposed action. The key difference between Alternative 3 and the proposed action would relate to the number of species covered under the Alternative 3 (reduced by comparison with the proposed HCP, as described in Chapter 2). Impacts on paleontological resources would be very similar under Alternative 3 to those described for the proposed action, and the same mitigation strategy would apply.	Under the No Action Alternative, PG&E would continue its existing program of O&M activities unchanged. No HCP would be implemented, and no other new or additional environmental commitments would be put in place. However, because the activities most likely to affect paleontological resources would not change substantially, paleontological impacts would be essentially the same as those described for the proposed action. The same mitigation strategy would apply.
Transportation and Circulation	Alternative 1 would enable the same program of O&M and minor construction activities described for the proposed action, with minor differences specific to commitments for the protection of biological resources. Alternative 1 would enact the same additional environmental commitments for other resource areas identified in this EIS/EIR for the proposed action, and compensation ratios for loss or disturbance of habitat would be the same as under the proposed action. The key difference between the proposed action and Alternative 1 is an additional level of stringency associated with the implementation of AMMs at a lower level of effect than under the proposed action, with the intent of reducing take. As discussed in Chapter 2 (*Proposed Action and Alternatives*), the AMMs implemented under Alternative 1 would be the same as those described above for the proposed HCP. However, under Alternative 1, AMMs for certain activities would be implemented at a lower level of disturbance. Although the level of take would be reduced because of the increased stringency associated with implementation of the AMMs, compensation is expected to be similar under both alternatives because compensation acreages would be calculated based on acreage affected, not on level of take. Consequently, under Alternative 1, impacts on traffic would be similar to those described for the proposed action.	Alternative 2 would enable the same program of O&M and minor construction activities as that described for the proposed action, with minor differences specific to commitments for the protection of biological resources. Alternative 2 would enact the same additional environmental commitments for other resource areas identified in this EIS/EIR for the proposed action. Differences between Alternative 2 and the proposed action center on compensation ratios for habitat disturbed or lost (increased under Alternative 2 by comparison with the proposed action). Under Alternative 2, assuming the same level of habitat disturbance, overall compensation needs would likely be greater than under the proposed action. Thus, as identified in Chapter 3 (*Land Use and Planning*), Alternative 3 would probably result in the establishment of a greater number of preserves, or preserves that encompass larger geographic areas, compared to the proposed action. Criteria for identifying suitable compensation lands would remain the same under Alternative 2, and selection of appropriate compensation lands would be subject to the same USFWS and DFG approval process. Thus, as the demand for compensation lands increases, availability of lands that support the appropriate habitat types would decrease, both within and outside of PG&E ROWs. Where appropriate and available compensation lands cannot be identified for purchase or easement, other compensation options would still be available (e.g., purchase of mitigation credits, donations, and enhancement), and might be used to a greater extent; reliance on compensation options other than acquisition by purchase or easement might offset some of the difference in compensation ratios. However, Alternative 2's enhanced compensation requirements would probably still result in greater overall compensation requirements and hence a greater number and/or larger acreage of preserves. Thus, impacts on traffic under Alternative 2 would be similar to but somewhat greater than those described for the proposed action.	Alternative 3 would enable the same program of O&M and minor construction activities described for the proposed action, and would enact the same additional environmental commitments for other resource areas identified in this EIS/EIR. The key difference between Alternative 3 and the proposed action relates to the number of species covered under Alternative 3 (reduced by comparison with the proposed action, as described in Chapter 2). Reducing the number of covered species could result in the establishment of a smaller number of preserves or preserves that encompass smaller geographic areas by comparison with the proposed action. At the same time, separate, case-by-case consultation for level of effect and compensation needs could be necessary for noncovered species, depending on the species potentially affected, and their status at the time of the proposed activity. It is difficult to determine the precise effect that this approach would have on traffic since locations and other details about specific compensation lands are unknown at this time. However, because some compensation requirements might be assessed on a case-by-case basis, Alternative 3 would have the potential to result in a greater number of smaller preserve areas, potentially requiring slightly increased management-related trips while distributing traffic effects related to use and management of preserves over a greater area. In summary, impacts on traffic would likely be similar under Alternative 3 to those described for the proposed action, but could be somewhat greater overall.	Under the No Action Alternative, PG&E would continue its existing program of O&M activities unchanged. No HCP would be implemented, and no other new or additional environmental commitments would be put in place. Individual actions affecting suitable habitat for listed special-status species would be assessed through case-by-case consultation with USFWS and DFG for level of effect and compensation needs. Because the compensation requirements for habitat disturbance would be assessed on a case-by-case basis, smaller parcels of land would likely be identified for enhancement at any given time; case-by-case assessment could also result in the establishment of a greater number of preserves. This is similar to but more extreme than the case described above for Alternative 3, where most compensation would likely occur under the auspices of an HCP process. The availability of desirable compensation lands is expected to decrease over time, as lands are used for compensation or other purposes. However, as described for the action alternatives, where appropriate and available compensation lands cannot be identified for purchase or easement, other compensation options would likely still be available (e.g., purchase of mitigation credits, donations, and enhancement), and might be used to a greater extent. It is difficult to determine the precise effect that this approach would have on traffic since locations and other details about specific compensation lands are unknown at this time. However, since the resulting compensation requirements would be assessed on a case-by-case basis, Alternative 4 could result in a greater number of smaller contiguous preserve areas, requiring more management-related trips but distributing traffic effects over a wider area. Thus, impacts on traffic would likely be similar under the No Action Alternative to those described for the proposed action, but could be somewhat greater overall.
Noise and Vibration	Because O&M and minor construction activities would be the same under the proposed action and all alternatives, noise generation would be similar for all alternatives. There could be some in-practice difference in long-term noise generation related to increases/decreases in the extent of compensation lands under the various alternatives, and thus in the noise-generating activities (notably, earthwork) needed to manage them. However, it is impossible to predict the extent and type of management- or restoration-related earthwork needed under each alternative, because the location and condition of compensation lands cannot be identified at this time. Consequently, analysis of the (probably minor) differences in noise generation among the proposed action and alternatives would be speculative.			

Resource	Alternative 1—HCP with Reduced Take	Alternative 2—HCP with Enhanced Compensation	Alternative 3—HCP with Reduced Number of Covered Species	Alternative 4—No Action
Air Quality	O&M and minor construction activities would be the principal source of pollutant emissions associated with the proposed action, so analysis of the proposed action's effects on air quality focused on O&M and minor construction activities. As identified above for noise and vibration, there could be some in-practice difference in long-term pollutant generation related to variation in the extent of compensation lands and the equipment and ground disturbance needed to manage them. However, as identified above for noise, it is impossible to predict the extent and type of management activities needed under each alternative, or the exact equipment required, because the location and condition of compensation lands cannot be identified at this time. Consequently, analysis of the—probably minor—differences in air pollutant emissions among the proposed action and alternatives would be speculative. The potential air quality benefits would depend on the acreage of compensation lands, and thus can be assessed comparatively at this time. Alternative 1 would focus on reducing take by comparison with the proposed action, through increased stringency in implementing the HCP's AMMs. However, although the level of take would be reduced, compensation needs are expected to be similar under both alternatives because compensation acreages would be calculated based on acreage affected, not level of take. Thus, air quality benefits would be very similar under Alternative 1 to those expected for the proposed action.	Alternative 2 would offer increase air quality benefits relative to the proposed action and other alternatives because of its increased requirement for compensation lands and the potential to preserve larger areas of vegetated open space.	Air quality benefits related to preservation of vegetated open space would be reduced under Alternative 3 by comparison with the other action alternatives, because the reduced list of covered species is expected to result in smaller compensation requirements.	It is difficult to predict the acreages required for compensation—and hence the potential for air quality benefits—under the piecemeal conservation approach that would result from implementing Alternative 4. However, it is unlikely that compensation acreages and the corresponding air quality benefits resulting from preservation of vegetated open space would match or exceed those anticipated under Alternative 2.
Public Health and Environmental Hazards	Alternative 1 would enable the same program of O&M and minor construction activities as that described for the proposed action, with minor differences specific to commitments for the protection of biological resources. Alternative 1 would be subject to the same regulatory requirements and would incorporate the same program of training and BMPs for hazardous materials handling identified in this EIS/EIR for the proposed action. Consequently, impacts related to hazardous materials and public health and safety would be essentially the same under Alternative 1 as those described for the proposed action.	Alternative 2 would enable the same program of O&M and minor construction activities as that described for the proposed action. Differences between Alternative 2 and the proposed action would center on compensation ratios for habitat disturbed or lost (increased under Alternative 2 by comparison with the proposed action). Alternative 2 would be subject to the same regulatory requirements and would incorporate the same program of training and BMPs for hazardous materials handling identified in this EIS/EIR for the proposed action. As with Alternative 1, impacts related to hazardous materials and public health and safety would be essentially the same under Alternative 2 as those described for the proposed action.	Alternative 3 would enable the same program of O&M and minor construction activities as that described for the proposed action. The key difference between Alternative 3 and the proposed action would relate to the number of species covered under the Alternative 3 (reduced by comparison with the proposed HCP, as described in Chapter 2). Alternative 3 would be subject to the same regulatory requirements and would incorporate the same program of training and BMPs for hazardous materials handling identified in this EIS/EIR for the proposed action. As with Alternatives 1 and 2, impacts related to hazardous materials and public health and safety would be essentially the same under Alternative 3 as those described for the proposed action.	Under the No Action Alternative, PG&E would continue its existing program of O&M and minor construction activities unchanged. No HCP would be implemented, and any habitat compensation needed would occur on a case-by-case, piecemeal basis. However, PG&E would still implement their standard methods and techniques for carrying out O&M activities, including the existing program of training and BMPs for hazardous materials handling. Therefore, impacts related to hazardous materials and public health and safety would be essentially the same under Alternative 4 as those described for the proposed action.
Recreation	Alternative 1 would enable the same program of O&M and minor construction activities described for the proposed action, with minor differences specific to commitments for the protection of biological resources. Compensation ratios for loss or disturbance of habitat would be the same as under the proposed action; the key difference between the proposed action and Alternative 1 is an additional level of stringency associated with the implementation of AMMs at a lower level of effect than under the proposed action, with the intent of reducing take. As discussed in Chapter 2 (*Proposed Action and Alternatives*), the AMMs implemented under Alternative 1 would be the same as those described above for the proposed HCP. However, under Alternative 1, AMMs for certain activities would be implemented at a lower level of disturbance (for more detailed information about AMMs under the proposed action and the alternatives, see Chapter 2). Although the level of take would be reduced because of the increased stringency in implementing the HCP's AMMs, compensation is expected to be similar under both alternatives because compensation acreages would be calculated based on acreage affected, not level of take. Consequently, under Alternative 1, impacts related to recreational resources would be similar to those described for the proposed action.	Alternative 2 would enable the same program of O&M and minor construction activities described for the proposed action. Differences between Alternative 2 and the proposed action center on compensation ratios for habitat disturbed or lost (increased under Alternative 2 by comparison with the proposed action). As identified in Chapter 3 (*Land Use and Planning*), increased compensation ratios could result in the establishment of a greater number of preserves or preserves that encompass larger geographic areas as compared to those established under the proposed action. Under Alternative 2, assuming the same level of habitat disturbance, overall compensation requirements could be greater than under the proposed action, possibly resulting in greater potential to disturb recreational facilities and opportunities. Criteria for identifying suitable compensation lands would remain the same under Alternative 2 (see Chapter 4 of the proposed HCP in Appendix B), and selection of appropriate compensation lands would be subject to USFWS and DFG approval. Nonetheless, as the demand for compensation lands increases, availability of lands that support the appropriate habitat types can be expected to decrease, both within and outside of PG&E ROWs. Where appropriate and available compensation lands cannot be identified for purchase or easement, other compensation options are available (e.g., purchase of mitigation credits, donations, and enhancement). Implementation of compensation options other than acquisition by purchase or easement may offset some of the	Alternative 3 would enable the same program of O&M and minor construction activities described for the proposed action, and would enact the same additional environmental commitments for other resource areas identified in this EIS/EIR. The key difference between Alternative 3 and the proposed action relates to the number of species covered under Alternative 3 (reduced by comparison with the proposed action, as described in Chapter 2). Depending on their status at the time, other species might be subject to state, and possibly also federal, requirements for impact assessment and compensation, which would need to be addressed on a case-by-case basis. Reducing the number of HCP covered species could result in the establishment of a lesser number of preserves or preserves that encompass smaller geographic areas (as compared to those established under the proposed action) as a result of activities enabled under Alternative 3. At the same time, additional, case-by-case assessment of compensation needs might be required for any individual activities identified as having the potential to affect noncovered special-status species. It is difficult to determine the precise effect that this approach would have on recreation since the species potentially involved, their listing status, and detailed compensation needs cannot be identified at this time. However, because Alternative 3 could require the assessment of at least some compensation needs on a case-by-case basis, it could result in the identification of smaller parcels of land (including ROW areas) for enhancement use, compared to the proposed action. Also, while Alternative 3 could result in smaller contiguous areas where access	Under the No Action Alternative, PG&E would continue its existing program of O&M activities unchanged. No HCP would be implemented, and no other new environmental commitments would be put in place. The following paragraphs describe the range of possible outcomes for recreation under the No Action Alternative. Individual actions affecting suitable habitat for listed species would be assessed through case-by-case consultation with USFWS and DFG for level of effect and associated compensation needs. Because the compensation requirements for habitat disturbance would be evaluated on a case-by-case basis, smaller parcels of land (including portions of ROW areas) would likely be identified for enhancement at any given time, but case-by-case consultation could also result in more numerous occurrences of closures or access limitations. This is similar to but more extreme than the case described above for Alternative 3, where most compensation would be expected to occur under the auspices of an HCP process. The availability of desirable compensation lands is expected to decrease over time, as lands are used for compensation or other purposes. However, as described for the action alternatives, where appropriate and available compensation lands cannot be identified for purchase or easement, other compensation options would likely still be available (e.g., purchase of mitigation credits, donations, and enhancement). Potential adverse effects on existing recreational opportunities could

Resource	Alternative 1—HCP with Reduced Take	Alternative 2—HCP with Enhanced Compensation	Alternative 3—HCP with Reduced Number of Covered Species	Alternative 4—No Action
		difference in compensation ratios. However, Alternative 2 would still have the potential to permanently reduce recreational opportunities in the action area. Further, the enhanced compensation requirements under Alternative 2 could result in greater overall compensation requirements and as a result, a greater number and/or larger acreage of preserves. Consequently, impacts related to recreation would likely be slightly greater under Alternative 2 than those described for the proposed action.	may be limited or closed, more numerous occurrences of closures or access limitations could occur under Alternative 3. Depending on availability of appropriate habitat, multiple restricted access areas could potentially be scattered within the same recreational facility or distributed among several facilities throughout the action area. As the demand for compensation lands increases, availability of lands that support the appropriate habitat types can be expected to decrease, including areas within PG&E ROWs. Where appropriate and available compensation lands cannot be identified for purchase or easement, other compensation options are available (e.g., purchase of mitigation credits, donations, and enhancement); reliance on compensation options other than acquisition by purchase or easement could offset some of the difference in compensation needs. However, criteria for identifying suitable compensation lands would remain the same, and selection of appropriate compensation lands would be subject to DFG and possibly also USFWS approval, depending on the species involved. Alternative 3 would thus have some potential to permanently reduce recreational opportunities in the action area. Impacts would be similar under Alternative 3 to those described for the proposed action, but the case-by-case approach to compensation determination for impacts on noncovered species under Alternative 3 could result in a greater number of preserves, and could also result in greater restrictions on existing recreational opportunities. In summary, impacts related to recreation could be slightly greater under Alternative 3 compared to those described for the proposed action, but might also be slightly less, depending on the need for, and the outcomes of, case-by-case assessment outside the HCP process. Depending on the need for, and the outcomes of, separate case-by-case assessment outside the HCP process, impacts could also be slightly less than those identified for the proposed action.	be reduced under the No Action Alternative compared to the proposed action since suitable compensation lands might become more difficult to acquire on a case-by-case basis and payment-type compensation options might be used to a greater degree. It is difficult to assess the precise effect that this approach would have on recreation because locations and other details about specific habitat enhancement sites are unknown at this time, as are the actual compensation acreages that would be required. If payment-type compensation options were not emphasized, the case-by-case approach to compensation determination under the No Action Alternative could result in a greater number of preserves, and/or greater restrictions on existing recreational uses than the proposed action. Consequently, impacts related to recreation could also be greater under the No Action Alternative than those described for the proposed action.
Environmental Justice	Effects related to environmental justice are expected to be minimal under the action alternatives, as under the proposed action, and would not require mitigation.			Environmental justice impacts under the No Action Alternative, if any, are thus expected to be minimal, and would not require mitigation.
Socioeconomics	No socioeconomic effects have been identified under the proposed action or action alternatives.			Under the No Action Alternative, no HCP would be implemented, and ESA compliance would continue to be accomplished on a case-by-case basis. Consequently, any changes by comparison to existing conditions would be negligible, and mitigation would not be needed.
Growth Inducement	The proposed action and action alternatives would all enable the same program of service upgrades and expansion in support of planned growth. Under all alternatives, upgrades and expansions would be implemented only in response to identified need; thus, the proposed action and all action alternatives have been identified as growth accommodating rather than growth inducing.			Because the No Action Alternative would continue the same program of O&M and minor construction as the proposed action, it would also support planned growth, and thus has the same potential for growth accommodation (as distinct from growth inducement) as the proposed action and action alternatives.
Environmental Sustainability	Environmental sustainability would be very similar for all of the action alternatives to that described for the proposed action. However, Alternatives 1 and 2 would offer a slight advantage by providing a more coordinated/integrative approach to conservation planning.		Environmental sustainability would be very similar for all of the action alternatives to that described for the proposed action. However, Alternative 3 would be slightly less advantageous overall because it would offer less coordinated to conservation planning.	Under the No Action Alternative, no HCP would be implemented, and ESA compliance would continue to be accomplished on a case-by-case basis. This would be slightly less advantageous in terms of environmental sustainability than the proposed action and action alternatives, because it would not support coordinated conservation planning over the long term.

Resource	Impact	Effect of Increased Conservation Acreage on Impact—Beneficial or Adverse?	Environmentally Preferable Alternative by Impact	Environmentally Preferable Alternative for Resource Overall
Land Use	Impact LUP1—Potential for O&M and minor construction activities to result in physical division of an established community or inconsistency with existing or planned land uses	No effect	No clear differentiation between alternatives	**Alternative 1**
	Impact LUP2—Potential for compensation options to result in physical division of an established community	Adverse	Alternative 1	
	Impact LUP3—Potential incompatibility of preserves with existing (onsite) land uses	Adverse	Alternative 1	
	Impact LUP4—Potential incompatibility of preserves with adjacent land uses	Adverse	Alternative 1	
	Impact LUP5—Potential inconsistencies between preserve land acquisition and local land use plans and policies	Adverse	Alternative 1	
	Impact LUP6—Potential conflicts with existing HCPs or NCCPs	No effect	No clear differentiation between alternatives	
Agricultural Resources	Impact AG1—Potential for the conversion of important farmland to nonagricultural uses due to O&M and minor construction activities	Little or no effect	No clear differentiation between alternatives	**Alternative 1**
	Impact AG2—Potential for the conversion of important farmland due to implementation of compensation options	Potentially somewhat adverse under NEPA; no effect under CEQA	Alternative 1	
	Impact AGR3—Potential to conflict with existing Williamson Act contracts	Adverse	Alternative 1	
Biological Resources	Impact BIO1—Potential disturbance or loss of natural vegetation	Beneficial; but avoidance of impacts is preferable to compensation	Alternative 1	**Alternative 1**
	Impact BIO2—Potential disturbance or loss of vernal pool habitat	Beneficial; but avoidance of impacts is preferable to compensation	Alternative 1	
	Impact BIO3—Potential disturbance or loss of covered special-status plant species and their habitat	Beneficial; but avoidance of impacts is preferable to compensation	Alternative 1	

Resource	Impact	Effect of Increased Conservation Acreage on Impact—Beneficial or Adverse?	Environmentally Preferable Alternative by Impact	Environmentally Preferable Alternative for Resource Overall
	Impact BIO4—Potential disturbance or loss of covered special-status wildlife species and their habitat	Beneficial; but avoidance of impacts is preferable to compensation	Alternative 1	
	Impact BIO5—Potential loss of noncovered special-status plant species and their habitat	Probably beneficial	No clear differentiation between alternatives	
	Impact BIO6—Potential effects on noncovered special-status wildlife species and their habitat	Probably beneficial	No clear differentiation between alternatives	
	Impact BIO7—Potential effects on aquatic habitat as a result of inchannel work	No effect	No clear differentiation between alternatives	
	Impact BIO8—Potential disturbance or loss of common wildlife species and their habitats	Probably beneficial	No clear differentiation between alternatives	
	Impact BIO9—Potential to spread invasive nonnative plant species	No effect	No clear differentiation between alternatives	
Aesthetics	Impact AES1—Potential for adverse effects on visual resources, visual character, or visual quality as a result of O&M activities	No effect	No clear differentiation between alternatives	**Alternative 2**
	Impact AES2—Potential for adverse effects on visual resources associated scenic highways and other designated scenic vistas as a result of new minor construction	No effect	No clear differentiation between alternatives	
	Impact AES3—Potential for medium- and long-term degradation of visual character of public viewshed as a result of vegetation removal and earthwork for new minor construction	No effect	No clear differentiation between alternatives	
	Impact AES4—Potential for long-term degradation of region’s visual resources through introduction of built elements	No effect	No clear differentiation between alternatives	
	Impact AES5—Potential introduction of new substantial sources of light or glare	No effect	No clear differentiation between alternatives	
	Impact AES6—Potential introduction of substantial new shading on adjacent parcels	No effect	No clear differentiation between alternatives	

Resource	Impact	Effect of Increased Conservation Acreage on Impact—Beneficial or Adverse?	Environmentally Preferable Alternative by Impact	Environmentally Preferable Alternative for Resource Overall
	Impact AES7—Aesthetic enhancement as a result of habitat compensation	Beneficial	Alternative 2	
Geology and Soils	Impact GEO1—Potential for damage to new or upgraded facilities as a result of surface fault rupture	No effect	No clear differentiation between alternatives	**No clear differentiation between alternatives**
	Impact GEO2—Potential for damage to new or upgraded facilities as a result of seismic groundshaking	No effect	No clear differentiation between alternatives	
	Impact GEO3—Potential for damage to new or upgraded facilities as a result of seismically induced liquefaction or other seismic ground failure	No effect	No clear differentiation between alternatives	
	Impact GEO4—Potential for damage to new or upgraded facilities as a result of slope failure; potential for construction activities to increase slope failure hazard	No effect	No clear differentiation between alternatives	
	Impact GEO5—Risks to new or upgraded facilities as a result of construction on expansive soils	No effect	No clear differentiation between alternatives	
	Impact GEO6—Potential for proposed action to result in accelerated soil erosion	No effect	No clear differentiation between alternatives	
	Impact GEO7—Potential loss of topsoil resources	No effect	No clear differentiation between alternatives	
Water Quality	Impact WR1—Potential to divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake	Beneficial	Alternative 2	**Alternative 2**
	Impact WR2—Potential for alteration of existing drainage patterns, increasing flood risk and/or erosion and siltation potential	Beneficial	Alternative 2	
	Impact WR3—Potential for increased flood risks as a result of facilities installation.	No effect	No clear differentiation between alternatives	
	Impact WR4—Potential for increased stormwater runoff, and corollary effects	Beneficial	Alternative 2	

Resource	Impact	Effect of Increased Conservation Acreage on Impact—Beneficial or Adverse?	Environmentally Preferable Alternative by Impact	Environmentally Preferable Alternative for Resource Overall
	Impact WR5—Potential use of streambed materials	No effect	No clear differentiation between alternatives	
	Impact WR6—Potential for reduction in groundwater recharge	Beneficial	Alternative 2	
	Impact WR7—Potential temporary degradation of surface water quality as a result of ground disturbance during O&M and construction activities	No effect	No clear differentiation between alternatives	
	Impact WR8—Potential temporary degradation of surface water quality as a result of inchannel work.	No effect	No clear differentiation between alternatives	
	Impact WR9—Potential for degradation of surface and groundwater quality as a result of hazardous materials spills or releases	No effect	No clear differentiation between alternatives	
Cultural Resources	Impact CR1—Potential disturbance or destruction of cultural resources as a result of O&M activities	No effect	No clear differentiation between alternatives	**No clear differentiation between alternatives**
	Impact CR2—Potential disturbance or destruction of cultural resources as a result of minor construction activities	No effect	No clear differentiation between alternatives	
	Impact CR3—Potential impacts on cultural resources as a result of habitat enhancement, restoration, or creation	No effect	No clear differentiation between alternatives	
Paleontological Resources	Impact PAL1—Potential for damage to paleontological resources	No effect	No clear differentiation between alternatives	**No clear differentiation between alternatives**
Transportation and Circulation	Impact TR1—Potential to result in temporary construction-related traffic increases and traffic safety hazards (O&M, minor construction, and preserve enhancements)	No effect	No clear differentiation between alternatives	**No clear differentiation between alternatives; Alternative 1 possibly slightly preferable overall**
	Impact TR2—Potential long-term traffic increases and traffic safety hazards due to O&M activities and staffing at new facilities	No effect	No clear differentiation between alternatives	
	Impact TR3—Potential long-term traffic increases and traffic safety hazards due to activities at	No effect	Alternative 1 slightly preferable	

Resource	Impact	Effect of Increased Conservation Acreage on Impact—Beneficial or Adverse?	Environmentally Preferable Alternative by Impact	Environmentally Preferable Alternative for Resource Overall
	preserves			
	Impact TR4—Potential to result in inadequate parking capacity	No effect	No clear differentiation between alternatives	
	Impact TR5—Potential conflicts with transportation plans, programs, and planned projects	No effect	No clear differentiation between alternatives	
Noise and Vibration	Impact N1—Potential for temporary or permanent exposure of noise-sensitive land uses to elevated noise levels	No effect	No clear differentiation between alternatives	**No clear differentiation between alternatives**
	Impact N2—Potential for temporary or permanent exposure of noise-sensitive land uses to elevated vibration levels	No effect	No clear differentiation between alternatives	
Air Quality	Impact AIR1—Potential to generate increased pollutant emissions during O&M activities	No effect	No clear differentiation between alternatives	**Alternative 2**
	Impact AIR2—Potential to exceed federal General Conformity thresholds	No effect	No clear differentiation between alternatives	
	Impact AIR3—Air quality enhancement as a result of habitat compensation	Beneficial	Alternative 2	
Public Health and Environmental Hazards	Impact PH1—Potential to create a hazard to the public or the environment through routine transport, use, or disposal of hazardous materials other than herbicides; potential for inadvertent spills or releases of hazardous materials other than herbicides	No effect	No clear differentiation between alternatives	**No clear differentiation between alternatives**
	Impact PH2—Potential to create a hazard to the public or the environment through routine transport, use, or disposal of herbicides; potential for inadvertent spills or releases of herbicides	No effect	No clear differentiation between alternatives	
	Impact PH3—Potential for human or environmental exposure to hazardous materials as a result of ground disturbance on sites with known hazardous materials contamination	No effect	No clear differentiation between alternatives	

Resource	Impact	Effect of Increased Conservation Acreage on Impact—Beneficial or Adverse?	Environmentally Preferable Alternative by Impact	Environmentally Preferable Alternative for Resource Overall
	Impact PH4—Potential to interfere with or impede the implementation of adopted emergency response plans; potential to interfere with emergency vehicle access or increase emergency services' response times	No effect	No clear differentiation between alternatives	
	Impact HC5—Potential handling of hazardous materials within 0.25 mile of an existing or planned school	No effect	No clear differentiation between alternatives	
Recreation	Impact REC1—Potential to result in, construct, or expand recreational facilities that might have an adverse physical effect on the environment	No effect	No clear differentiation between alternatives	**No clear differentiation between alternatives**
	Impact REC2—Potential to increase the use of recreational facilities accelerating or causing physical deterioration	No effect	No clear differentiation between alternatives	
	Impact REC3—Potential for reduced recreational opportunities due to O&M and short-term construction activities	No effect	No clear differentiation between alternatives	
	Impact REC4—Potential for reduced recreational opportunities due to installation of new, improved, or expanded aboveground facilities or structures	No effect	No clear differentiation between alternatives	
	Impact REC5—Potential for reduced recreational opportunities due to implementation of compensation options	Adverse	Alternative 1	
	Impact REC6—Potential to provide new or enhanced recreational opportunities due to establishment of preserves or other compensation lands	Beneficial	Alternative 2 (benefit considered speculative)	
Socioeconomics	No impacts identified	No effect	No clear differentiation between alternatives	**No clear differentiation between alternatives**
Environmental Justice	No impacts identified	No effect	No clear differentiation between alternatives	**No clear differentiation between alternatives**

benefited by increased acreages of open space—aesthetic resources, water resources (in particular, water quality), and air quality. Finally, for many of the resource areas analyzed, environmental effects would be comparable under all alternatives, and it is difficult to differentiate clearly between them.

In summary, Alternative 1 would offer the best outcome for a total of four resources, while Alternative 2 would offer the best outcome for a total of three resources, reflecting a slight advantage under Alternative 1. Resources without a clearly preferable alternative were considered not to bear directly on identification of an environmentally preferable approach. Because of the proposed action's focus on protection and conservation of sensitive biological resources, potential biological benefits were considered the deciding factor, and Alternative 1, which focuses on avoiding impacts on known populations of sensitive species through increased stringency in implementing AMMs, is identified as the environmentally preferable/environmentally superior alternative.

Comparison of Environmentally Superior Alternative and Proposed Action

Alternative 1 would reduce take by comparison with the proposed action, by applying AMMs more comprehensively and stringently. Thus, it would offer some level of biological benefit over the proposed action. However, because Alternative 1 would require preactivity surveys for a wide variety of fairly minor activities, it would likely restrict the seasons during which some O&M activities could be conducted and thus could impede the timely performance of O&M and/or interfere with emergency repair activities. This could result in conflicts with CPUC safety regulations, and could also compromise PG&E's ability to deliver reliable electrical and natural gas service. In addition, PG&E's budget analyses suggest that full implementation of Alternative 1 would be prohibitively expensive. Thus, although potentially feasible, Alternative 1 has been evaluated as difficult to implement reliably in practice, and potentially counter to PG&E's legal responsibilities under CPUC regulations.

The proposed action would avoid these conflicts and support PG&E's service delivery responsibilities, while providing adequate protection for the covered species and their habitats. It offers the additional advantages of more manageable costs, and would still yield substantial biological benefits by comparison with existing procedures.

Contents and Organization of this EIS/EIR

Table S-11 on the following page provides a chapter-by-chapter overview of this EIS/EIR's contents.

Table S-11. Organization of this Draft Environmental Impact Statement/Environmental Impact Report

Chapter	Contents	Chapter	Contents
1	Introduction	14	Public Health and Environmental Hazards
2	Proposed Action and Alternatives	15	Recreation
3	Land Use and Planning	16	Socioeconomics
4	Agricultural Resources	17	Environmental Justice
5	Biological Resources	18	Cumulative Effects
6	Aesthetics	19	Growth Inducement and Related Effects
7	Geology and Soils	20	Environmental Sustainability
8	Water Resources	21	Comparison of Alternatives
9	Cultural Resources	22	List of EIS Preparers
10	Paleontological Resources	23	EIS/EIR Recipients
11	Transportation and Circulation	Appendix A	NOI, NOP, Scoping Comments
12	Noise and Vibration	Appendix B	Draft San Joaquin Valley O&M HCP
13	Air Quality	Appendix C	Acronyms and Abbreviations (11 x 17 foldout)